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BUREAU OF MINES  
State Capitol, Denver

HORACE F. LUNT, Commissioner of Mines

ANNUAL REPORT  
FOR THE YEAR 1920



DENVER, COLORADO  
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1921

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STATE OF COLORADO  
BUREAU OF MINES

State Capitol, Denver

HORACE F. LUNT, Commissioner of Mines

ANNUAL REPORT  
FOR THE YEAR 1920





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## LETTER OF TRANSMITTAL

To His Excellency,  
THE HONORABLE OLIVER H. SHOUP,  
Governor of Colorado.

SIR:

In compliance with the provisions of Section 4268, Revised Statutes of Colorado, 1908, as amended by the 22nd General Assembly, 1919, I have the honor to transmit herewith the Annual Report of the State Bureau of Mines for the year 1920, including the Financial Report for the biennial period 1919-1920.

Respectfully submitted,

HORACE F. LUNT,  
*Commissioner of Mines.*

State Capitol,  
Denver, Colorado,  
May 1, 1921.

## PERSONNEL OF THE BUREAU OF MINES OF THE STATE OF COLORADO

HORACE F. LUNT, Commissioner of Mines.....	Denver
T. R. HENAHEN, Inspector, District No. 1.....	Denver
M. J. MCCARTHY, Inspector, District No. 2.....	Cripple Creek
R. J. MURRAY, Inspector, District No. 3.....	Leadville
ROBERT INNES, Inspector, District No. 4.....	Montrose
MELVIN J. COLLINS, Chief Clerk.....	Denver
MRS. A. M. NICKERSON, Stenographer.....	Denver

## DISTRICTS OF INSPECTION

DISTRICT No. 1—Moffat, Routt, Jackson, Grand, Larimer, Boulder, Gilpin, Clear Creek, Jefferson, Denver, Weld, Adams, Arapahoe, Morgan, Logan, Sedgwick, Phillips, Washington and Yuma Counties.

DISTRICT No. 2—Douglas, Elbert, Teller, El Paso, Fremont, Custer, Huerfano, Las Animas, Pueblo, Lincoln, Kit Carson, Cheyenne, Kiowa, Crowley, Otero, Bent, Prowers and Baca Counties.

DISTRICT No. 3—Rio Blanco, Garfield, Mesa<sup>1</sup>, Delta, Eagle, Summit, Pitkin, Lake, Park and Chaffee Counties.

DISTRICT No. 4—Montrose, San Miguel, Dolores, Montezuma, Ouray, San Juan, La Plata, Gunnison, Hinsdale, Saguache<sup>2</sup>, Mineral<sup>2</sup>, Rio Grande, Alamosa, Archuleta, Conejos and Costilla Counties.

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<sup>1</sup>The southwestern part of Mesa County has been temporarily transferred to District No. 4.

<sup>2</sup>That part of Saguache County lying east of the Continental Divide and Mineral County have been temporarily transferred to District No. 3.



# FINANCIAL STATEMENT

1919-1920

## RECEIPTS

Appropriation for the fiscal years 1919-1920

Salary, Commissioner .....	\$ 6,000.00
Salaries, Inspectors .....	14,400.00
Salary, Clerk and Assistant Curator....	3,000.00
Salary, Stenographer .....	2,400.00

\$25,800.00

Traveling expenses, Commissioner.....	\$ 2,000.00
Traveling expenses, Inspectors.....	9,600.00

\$11,600.00

Incidental Fund .....	\$ 1,500.00
-----------------------	-------------

Transferred by resolution of Auditing Board      580.21

\$ 2,080.21

\$39,480.21

## DISBURSEMENTS

Salaries

Commissioner .....	\$ 6,000.00
Inspector, District No. 1.....	3,150.00
Inspector, District No. 2.....	3,600.00
Inspector, District No. 3.....	3,600.00
Inspector, District No. 4.....	3,450.00
Clerk and Assistant Curator.....	3,000.00
Stenographer .....	2,400.00
Unexpended balance .....	600.00

\$25,800.00

Traveling Expenses

Commissioner .....	\$ 1,576.25
Inspectors .....	9,076.65
Unexpended balance .....	947.10

\$11,600.00

Incidental expenses .....

\$ 2,080.21      2,080.21

\$39,480.21



## INTRODUCTION

The work of the Bureau of Mines during 1920 was, through lack of funds for other purposes, confined to routine.

The matter of mine inspection, carried on to prevent dangerous practices and to make mining as safe as possible, was faithfully executed by the four inspectors. They were obliged to stop work from the middle of October until the first of December on account of the exhaustion of the Inspectors' Traveling Fund for the year. The increased costs of traveling and living made it impossible to stretch the fund over the period it was supposed to cover. In general, this work has the hearty co-operation of the mine operators of the state. Unsafe practices are more often than not the result of ignorance and most operators are anxious to do everything in their power to make their mines safe. During the year a pamphlet on "Mine Safety Standards" was published to indicate to those interested what should be done to prevent accidents.

The Commissioner and Inspectors at all times endeavor to help the mine operators in every possible manner and wish to be called upon whenever their services can be used to advantage.

A large number of inquiries regarding the mines and mineral resources of the state are constantly coming in to the Bureau and an endeavor is always made to give the best and most accurate information available. The Colorado Geological Survey has rendered helpful co-operation in many cases. The specialized information of the members of the United States Bureau of Mines Experiment Station at Golden was often of great value and its removal from the state is a distinct loss.

As the time of the assistant curator is well filled with clerical work, it has been impossible to give much attention to the Mineral Collection. A number of new specimens have been added, but, as has been pointed out in former reports, it is impossible to give the collection the attention it deserves without additional funds.

Loyal and efficient service has been rendered by the entire personnel of the Bureau, for which the Commissioner expresses his appreciation.

# METAL MINING IN 1920

## GENERAL CONDITIONS.

The Colorado metal mining industry is at present in a more depressed condition than it has been at any time since 1893. This is due chiefly to the rapid fall in the prices of lead and zinc, and to a less extent copper, during the last quarter of 1920 which has continued into 1921. The present prices of these metals is such that Colorado zinc ores cannot be mined at a profit and the only lead ores that can be profitably produced are those of more than average richness, or those containing considerable quantities of silver and gold. The few Colorado mines which depend upon copper values are similarly affected.

The price of silver, which reached the peak of \$1.37½ per ounce in November, 1919, has steadily declined. In May, it dropped below a dollar and only the Pitman act saved the American producers from the extremely low prices that have since prevailed in the world markets.

The gold producers are struggling against the same adverse conditions that have prevailed for the past few years, the fixed price of their product and its consequent decreased purchasing power under existing conditions.

The increasing demand for radium has stimulated activity in the carnotite districts in Montrose and adjoining counties. The vanadium mines and reduction works in San Miguel County have been shut down on account of the renewed importation of higher grade ores from South America. Tungsten mining continues dormant on account of the cheapness of foreign, particularly Chinese, ores. The molybdenum mines of the state are all idle because there is no market for their product, but there is some prospect for a renewed demand for this metal.

The fluorspar production fell off during the latter part of the year on account of decreasing demands. A small amount of mica has been mined and there is a possibility that its production may increase. The clay and stone quarries of the state have produced enough to meet local demands.

The decreased mine production has naturally resulted in curtailing activity at the smelters. The zinc smelters and oxide plants are either closed down or operating on a very small scale. The lead smelters are running with greatly reduced throughputs. Smelting charges have been increased to offset the increased freight rates which went into effect during the late summer.

Nothing of importance has yet transpired in the oil shale field in the northwestern part of the state. The passage of the leasing law has had little effect as practically all of the shale land had already been located as oil placers. Rulings by the land office have clarified the matter of what constitutes valid assessment work. The decision that diamond drill holes constitute legal work will undoubtedly encourage drilling and lead to valuable geological information being obtained in this manner. It is reported that several of the large oil companies have acquired land and are experimenting with shale oil education and refining.

### REVIEW OF PRINCIPAL DISTRICTS.

In Boulder, Gilpin and Clear Creek counties many small operations, which were encouraged to start by the high metal prices prevailing early in the year, have ceased entirely. The most active property in this district, at present, is the Gem at Idaho Springs. It has recently been taken over by Canadian interests which have also acquired the Argo tunnel and Argo mill. Active prospecting is under way, it is said, with encouraging results.

Production in Summit County is practically nothing at present. The Wellington, Jessie, Royal Tiger and other smaller properties, which were producers during the year, have either shut down or are doing development work with very small working forces. Two of the five gold dredges in the county have ceased operations permanently.

Very little work was done in Park County in 1920. The Hilltop produced a considerable tonnage of lead-silver ore during the early part of the year, but was forced to close by the low prices prevailing later on. The London has made a steady production of high grade gold ore. A gold dredge is being built near Fairplay.

The Eagle mine at Gilman, the only important producer in Eagle County, has remained in operation. It is primarily a zinc mine, but contains large bodies of low-grade silver ore, high in iron, which are valuable as flux for the lead smelters. Zinc ore cannot be profitably mined at present but the fluxing ore can.

Leadville production of gold, silver, lead, zinc and manganese ores declined markedly during the latter part of the year. The principal mining operations have been those of the Down Town Mines Company, the Yak Mines Company and lessees on the Ibex. The oxide plant of the Western Zinc Concentrating Company was enlarged during the year, but the unfavorable zinc market prevented operation to the full increased capacity. The Yak Company conducted some successful experiments on the concentration of low-grade zinc ores which may result, ultimately, in the rebuilding of the Yak mill. John Cortellini has conducted experiments on low-grade gold ores that may, in time, make possible the beneficiation of some of the dumps and lower grade ores of Jonny Hill. Plans are being made to drive a long tunnel to prospect Canterbury hill for new ore bodies which, it is believed, are likely to exist there.

At Aspen, several encouraging discoveries were made during the year. A large body of zinc ore was opened in the Lenado mine near Woody Creek. Silver ore has been discovered in both the Hope and the Park tunnels; it is too early to predict what the extent of these ore bodies will be, but they appear to have some importance.

Creede, which was producing more heavily than for many years in the Spring, is now extremely quiet. The Buffalo Sulphur Refining Company is building a refinery at Creede and is preparing to mine sulphur on Trout Creek, about 20 miles above.

Practically all of the mines in the Silverton district have ceased production. The Mountain Top and the Atlas continue to be the chief producers of the Ouray district. Telluride continues to be the largest producer among the San Juan camps. The production was curtailed during 1920 by the fire which destroyed the Smuggler-Union flotation plant and the closing down of the Alta. The Liberty Bell will probably cease operations before the end of 1921. Very little work was done in the Ophir and Rico districts. In the La Platas the Lewis Mountain Mining and Milling Company has been actively developing the Ten Broeck mine, it is reported with encouraging results.

The stagnation in the base metal districts has caused a slight revival of interest in Cripple Creek where there is more leasing going on than for several years past. This will undoubtedly result in an increased production in 1921. Deep development in the Portland is reported to be showing favorable results. The Vindicator is reported to have found new ore bodies by lateral exploration from the old workings. The Cresson continues to produce a large tonnage, but of lower grade than formerly. A new hoist on the Modoc is expected to make possible an increased production of a good grade of ore from bodies recently developed.

Mining in other districts, some of which were quite active early in the year, has practically ceased at present.

## CONCLUSION

It is hoped that no one will gain the impression from the above that mining in Colorado is dead; such is not the case. More favorable economic conditions, which are bound to come before long, will bring about increased activity and renewed production from mines now idle. Improved methods of ore dressing will render available known deposits that are too low grade or too complex to be profitably exploited under present conditions. More intense and more scientific prospecting will bring to light new ore bodies. It is true that this is a time to try the miner's soul, but the country is in a sounder financial and industrial condition than any other important nation in the world;<sup>1</sup> sooner or later the demand for metals will increase and the prices will rise. There is every reason to look forward into the immediate future with vision and courage—vision to see the possibilities inherent in our mineral deposits and courage to plan to take advantage of them.

<sup>1</sup>Statement in Bulletin of the Guarantee Trust Company of New York



TABLE I

## PRODUCTION OF THE PRINCIPAL METALS IN COLORADO IN 1919 AND 1920.

Compiled from figures by C. W. Henderson, Mineral Geographer, U. S. Geological Survey. Figures for 1920 are preliminary and subject to correction.

County	GOLD <sup>1</sup>				SILVER <sup>1</sup>				COPPER				LEAD				ZINC				Total Value	Increase or Decrease	County					
	Ore Sold or Treated		Fine Ounces	Value	Ore Sold or Treated		Fine Ounces	Value	Ore Sold or Treated		Pounds	Value	Ore Sold or Treated		Pounds	Value	Ore Sold or Treated		Pounds	Value								
	1919	1920			1919	1920			1919	1920			1919	1920			1919	1920						1919	1920	1919	1920	1919
Boulder	6,113		2,643.84	\$ 54,653	2,638	\$ 54,532	225,484	\$ 252,542	143,906	\$ 162,308	11,043	\$ 2,054	5,786	\$ 1,065	206,605	\$ 10,950	226,825	\$ 18,146			\$ 320,199	\$ 236,051	\$—	84,148	Boulder			
Chaffee	19,655		2,813.83	58,167	1,523	31,483	40,550	45,416	39,572	43,133	70,823	13,173	28,145	5,179	803,228	42,571	399,123	31,930	956,630	70,491	283,240	22,942	229,818	134,667	—	95,151	Chaffee	
Clear Creek	116,355		4,408.27	91,127	2,425	50,129	357,439	400,332	223,015	243,086	152,925	28,444	64,816	11,926	1,517,134	80,408	2,284,612	182,769	603,027	44,021	985,712	79,843	614,332	567,753	—	76,579	Clear Creek	
Custer	4,621		230.80	4,771	39	806	97,159	108,818	34,249	37,331	72,979	13,574	28,053	5,162	155,134	8,222	171,560	13,725					135,385	57,024	—	78,361	Custer	
Dolores	4,461		121.76	2,517	113	2,336	35,225	39,452	32,168	35,063	264,968	49,234	7,036	1,295	98,700	5,231	757,052	60,564	67,027	4,893	196,756	15,937	101,377	115,195	+	13,818	Dolores	
Eagle	22,248		964.36	19,935	1,240	25,633	72,159	80,818	280,428	305,667	123,306	22,935	519,756	95,635	378,113	20,040	292,528	23,402	3,367,548	245,831	3,658,910	296,372	389,559	746,709	+	357,150	Eagle	
Glipin	17,018		10,143.42	209,683	4,429	91,556	71,700	80,304	42,769	46,618	211,538	39,346	93,707	17,242	523,621	27,752	438,289	35,063					357,085	190,479	—	166,606	Glipin	
Grand	3		.05	1			508	569	856	933					453	24	528	42					594	975	+	381	Grand	
Gunnison	8,348		1,526.52	31,556	1,166	24,103	18,425	20,636	26,371	28,744	5,124	953			117,454	6,225	852,080	68,166	2,456,479	179,323	1,401,292	113,505	238,693	234,518	—	4,175	Gunnison	
Hinsdale	1,219		398.22	8,232	299	6,181	22,942	25,695	21,408	23,335	7,705	1,433	2,499	460	55,679	2,951	79,690	6,375					38,311	36,351	—	1,960	Hinsdale	
Lake	217,667		30,280.62	625,956	37,844	782,305	1,542,324	1,727,403	1,122,416	1,223,433	888,628	165,285	814,772	149,918	11,299,076	598,851	9,543,758	763,501	23,165,219	1,691,061	20,146,121	1,631,836	4,808,556	4,550,993	—	257,563	Lake	
La Plata	405		288.60	5,966	625	12,920	6,075	6,804	10,666	11,626	167	31			2,283	121	949	76					12,922	24,622	+	11,700	La Plata	
Mineral	16,718		439.39	9,083	276	5,705	369,575	413,924	272,340	296,851	355	66	1,199	221	934,113	49,508	531,536	42,523	96,274	7,028			479,609	345,300	—	134,309	Mineral	
Montrose			9.63	199	8	165	2	2	2	2													201	167	—	34	Montrose	
Ouray	61,465		4,466.85	92,338	1,631	33,716	627,659	702,978	462,673	504,314	112,188	20,867	82,627	15,203	1,782,868	94,492	1,302,681	104,214					912,379	657,447	—	254,932	Ouray	
Park	11,210		6,267.32	129,557	6,942	143,504	70,949	79,463	51,034	55,627	20,436	3,801	18,809	3,461	305,908	16,213	1,085,665	86,853	23,343	1,704			229,034	289,445	+	60,411	Park	
Pitkin	121,534						657,058	735,005	625,449	681,739					5,310,170	281,439	4,490,618	359,252	80,000	5,840	617,792	50,041	1,023,184	1,091,032	+	67,848	Pitkin	
Routt	172		15.09	312	5	103	1,283	1,437															1,749	103	—	1,646	Routt	
Saguache	509		39.52	817	241	4,982	37,767	42,299	93,487	101,901	36,344	6,760	91,154	16,772	52,515	2,783	160,140	12,811					52,659	136,466	+	83,807	Saguache	
San Juan	61,899		6,112.59	132,560	12,674	261,995	279,667	313,227	666,847	726,863	661,667	123,070	1,209,545	222,556	5,443,906	288,527	14,741,907	1,179,353	1,833,768	133,865	9,851,085	797,938	991,249	3,188,705	+	2,197,456	San Juan	
San Miguel	428,565		101,853.08	2,105,490	63,796	1,318,780	1,100,942	1,233,055	1,083,091	1,180,572	913,925	169,990	959,767	176,597	7,636,790	404,750	7,550,027	604,002	515,082	37,601	175,618	14,225	3,950,886	3,294,176	—	656,710	San Miguel	
Summit	17,567		23,021.22	475,891	19,840	410,129	87,676	98,197	124,412	135,609	6,086	1,132		9,541	1,756	446,491	23,664	448,217	35,857	4,047,096	295,438	8,250,087	668,257	894,822	1,251,608	+	357,286	Summit
Teller	775,986		281,920.69	5,827,816	208,837	4,317,044	35,442	39,695	37,745	41,142							25,210	2,017					5,867,511	4,360,203	—	1,507,308	Teller	
Totals	1,919,768		478,265.58	\$9 886,627	366,591	\$7 578,107	5,758,010	\$6 448,971	5,399,907	\$5 885,897	3,560,207	\$662,198	3,937,212	\$724,448	37,070,241	\$1,961,722	45,383,025	\$3,630,641	37,211,493	\$2,717,096	45,566,613	\$3,690,896	\$21,679,714	\$21,609,989				
Increase or decrease					—111,674	—\$2,308,520					—358,103	—\$563,074			+	377,005	+	\$62,250			+	\$908,689				—\$169,725		
Unit prices				\$20.6718		\$20.6718		\$1 12		\$1.09		\$0.186		\$0.184		\$0.053		\$0.08		\$0.073		+	\$0.081					

<sup>1</sup>Includes placer production.

TABLE 1

## AT METALURGIC CORPORATION IN 1949 AND 1950

• 1171

## PRODUCTION

### **Gold, Silver, Copper, Lead and Zinc.**

The production of gold, silver, copper, lead and zinc for 1919 and 1920 is shown in Table I. The figures for 1919 are final; those for 1920 are preliminary and subject to correction.

The gold dredges in Summit and Lake Counties, the production of which is included with that of the lode mines in Table I, recovered bullion containing about 25,000 ounces of gold and 6,400 ounces of silver.

### **Manganese.**

In 1920 the entire manganese ore production of Colorado came from Leadville. It amounted to 12,844 long tons with a value of \$128,440. The 1919 production was 19,062 long tons with a value of \$356,111.

### **Tungsten.**

The present production of tungsten ore in Colorado is from a small amount of development work. In 1920 it amounted to 216 tons of ore and concentrates carrying 60 per cent of tungsten trioxide. It was all from Boulder County.

### **Uranium, Vanadium and Radium.**

In 1920 Colorado produced 1,329 tons of roscoelite ores which contained 374.4 tons of radium pentoxide, or 194.5 tons of vanadium, valued at \$1,176,309.

The 1920 Colorado production of uranium ores was 12,220 tons valued at \$1,174,071. This was chiefly carnotite ore from Montrose and the neighboring counties, but includes a small amount of pitchblende from Gilpin County. These ores contained 291,500 pounds of uranium oxide, or 274,279 pounds of uranium; 37,379 grams of radium; and 524 tons of vanadium pentoxide, or 293.4 tons of vanadium.

The total vanadium content of all Colorado ores produced in 1920 is 487.9 tons.

In 1919 the total tonnage of carnotite and roscoelite ores produced was 10,830, from which 235 tons of vanadium and 111 tons, or 222,000 pounds, of uranium were obtained.



**Fluorspar.**

In 1920 Colorado produced 12,852 tons of fluorspar valued at \$251,308, an average of \$19.55 per ton. Practically all of this came from Wagon Wheel Gap in Mineral County, but there were a few small shippers in Boulder County and one in Jackson County.

In 1919 the production was 9,687 tons valued at \$150,739, an average of \$15.56 per ton.

**Acknowledgment.**

Thanks are due to George Otis Smith, Director, and C. W. Henderson, Mineral Geographer, of the United States Geological Survey, for the production statistics.

## ACCIDENTS

The accidents that occurred to the employes in the mines, mills, quarries, and smelters of the state during 1919 and 1920 are tabulated according to the United States Bureau of Mines classification in Tables II, III and IV.

### NOTES ON THE FATAL ACCIDENTS OF 1920.

#### UNDERGROUND.

January 6, in San Juan County, John Cornack, age 36, a motorman's helper, had his chest crushed when a car on which he was riding tipped over. He died a few days later. No one can be blamed for this accident.

January 29, in San Juan County, Steve Borys, age 46, a trammer, pushed a car into a shaft and fell with it 200 feet. He was instantly killed. The accident was apparently due to absent mindedness on the part of the deceased.

January 29, near Kokomo, Peter Walsh, age 51, a miner, had his back broken by a falling rock. He died a few days later. The accident was clearly due to failure to examine and pick down the roof before working under it.

February 10, near Telluride, Delphin Montoya, age 19, a mucker, was killed by the concussion from the explosion of a powder magazine. The cause of the explosion has never been satisfactorily determined.

March 19, at a mine near Telluride, Gus Jotkes, a motorman, age 40, was switching cars in the mine with his feet hanging over the side of the locomotive. He was caught between the motor and the wall of the tunnel, dragged off and crushed. He died a month afterwards from the effects. The accident was due entirely to the carelessness of the deceased.

March 20, at a mine in Boulder County, Charles Bradley, age 25, a miner, was caught under a large slab of rock which fell from the back of the drift in which he was working and instantly killed. If the timbering had been kept closer to the face, as it should have been, this accident would have been prevented.

April 23, near Telluride, Carl Larson, age 22, a mucker, while working over a chute, fell 185 feet down a timber slide and was instantly killed. Blame for this accident rests on both the deceased, who should have made himself secure, and on his employers who should have had the chute properly guarded.

On May 26, in a mine near Telluride, Alex Samson, age 22, a trammer, was operating a small timber hoist when a rock fell down the manway, hit his head and caused injuries from which he died a few days later. The accident was due to the carelessness of the deceased; he should not have been standing under the raise while hoisting was going on.

On June 13, in a mine near Telluride, Jack Cerin, age 37, a trammer, was caught in a run of ore from a defective chute past which he was tramming, buried in the ore and injured so that he died the following day. The accident was caused by the failure of the deceased to obey orders to keep away from the defective chute.

June 16, in a mine near Idaho Springs, John W. Galbreth, age 48, a miner, was blown to pieces, evidently while tamping a hole with a steel scraper. This was due to his gross carelessness in using a metal tool instead of a wooden bar for tamping.

June 26, at Leadville, Robert E. Silk, age 23, a miner, was caught under caving ground in a stope and instantly killed. This appears to have been an unavoidable accident.

June 30, in Eagle County, Andrew Zajac, age 45, a timberman, while timbering was struck by falling ore causing fracture and subluxation of cervical vertebrae. He died a few days later. He was putting in side lagging when the accident occurred. Had he put in the top lagging first it would have been prevented.

July 8, in San Juan County, Edumonio Martinez, age 25, a machine man, and L. Vigil, age 22, a machine helper, were instantly killed by a blast. They had trouble spitting their fuses and staid at the working face too long. Their poor judgment cost them their lives.

July 15, in Cripple Creek, M. U. Johnston, age 27, a machine man, while trying to remove a drill which was stuck in a hole in the back of a stope, loosened and brought down on himself a rock weighing about two tons. His skull was broken and he died a few hours later. This accident was probably due to the lack of care in examining the back before drilling.

July 22, in Cripple Creek, Charles Bennett, a timberman, age 49, was cutting a hitch when a small rock fell and struck his hammer. The hammer handle hit him in the abdomen causing a rupture of the kidney and puncture of the colon, from which injuries he died the following day. This peculiar accident might have been avoided had he picked down the loose rock before starting to work as he had been told to do by his partner.

July 29, in a mine near Telluride, Mark Krimpotich, age 26, a trammer, walked into an open chute and was instantly killed. The accident was probably due to the fact that the chute was not properly guarded.

August 3, in a mine in Gunnison County, Ossian Hibbs, age 41, a contractor, was instantly killed while leaving a raise in which he had spit a round of holes. Evidently the first hole caused displacement of part of the bulkhead and a rock from a later hole

struck him in the head before he was off the ladder. More careful bulkheading or longer fuses might have prevented this.

August 22, in San Miguel County, Andrew Nelson, age 22, a miner, went up into a raise too soon after a blast. He was overcome by the gases and smoke and fell down the raise, fracturing his skull. He was dead when taken from the mine a few minutes later. His death was due to his own lack of caution in going back to the face so soon after blasting.

November 11, at a mine in San Juan County, Louis Fuffos, age 24, a miner, was working in the bottom of a shaft when a rock from the bucket fell on his head crushing his skull so that he died within a few hours. This accident was due to an overloaded bucket and the absence of a bulkhead over the bottom of the shaft.

### **SHAFT.**

On April 13, at a mine near Telluride, T. G. McNamara, age 45, and Charles Tirevich, age 49, cagers, were riding up a shaft in an empty car on the cage. The car tipped up and they were caught between the edge of the car and the shaft timbers and instantly killed. The accident was due to the wilful failure to obey the posted rules against riding on cage with car.

### **SURFACE.**

January 19, near Silverton, G. I. Camp, age 52, a tram man, was riding an aerial tram bucket; the tram stopped and he loosened the grip on the bucket and lost control of it; the bucket on which he was riding collided with another bucket near a tower; he was thrown into the tower receiving internal injuries causing death within a few minutes. This accident was entirely the fault of the deceased, being caused by his loosening the bucket to "skin the cable," a practice that has caused many other accidents.

March 9, at a mine near Ouray, A. C. Townley, a laborer, while shoveling snow from the roof of a mill was caught in a slide of snow from upper part of roof and suffocated before he could be rescued. His death was due to his having become confused and having run into the slide instead of away from it when he was warned.

June 30, at Aspen, John Jenkins, age 17, a mechanic's helper, while hoisting a sheave wheel with a rope, contracted a strangulated hernia which caused his death two days later. No one can be blamed for his death.

September 21, at a mine near Breckenridge, Willard L. Sprague, age 61, a laborer, fell into a moving belt, receiving injuries from which he died a few hours later. It is believed that the fall of the deceased was due to a fainting spell, and that no blame is attached to anyone for the accident.

October 15, at Leadville, William H. Joyce, age 35, a blacksmith, was testing a machine drill air tank which exploded. He received injuries from which he died a few days later. This accident appears to have been unavoidable.



**MILLS.**

February 2, at a mill near Colorado Springs. A. F. Taylor, age 51, a pumpman, was caught by a slide of tailings below the dump, buried and suffocated to death. No blame can be placed on anyone for this accident.

November 8, at a mill near Telluride. Andrew Nichols, age 22, a ball mill attendant, while working near a moving shaft had a piece of waste in his pocket caught by the shaft, and his clothing drawn around the shaft. His arm and leg were broken and he received internal injuries which caused death within a couple of hours. This accident was due to the practice, always dangerous when working around machinery, of allowing any loose material to project from clothing.

**SMELTERS.**

February 4, in La Plata County, Henry Heidt, age 56, a boiler maker, was removing the head of a sulphuric acid drum with an acetylene torch when the tank exploded, breaking his legs and otherwise injuring him so that he died a few hours later. This was a most unusual accident and no one can be blamed for it.

February 14, at Pueblo, G. Cervantes, age 36, a crusherman, was caught by the collar of his jumper in some gearing and choked to death. The accident was due to an unguarded gear.

June 21, at Pueblo, William Grimes, age 54, a dross-pot man, fell from a beam on which he was working to the floor, 12 feet below, landed on his head and was instantly killed. It appears that he must have become dizzy or fainted as he made no effort to save himself. No one can be blamed for the accident.

**QUARRIES.**

March 9, at a clay pit near Golden, George Barrick, age 44, a teamster, and Earl Walker, age 37, a miner, were instantly killed by a fall of rock from the side of the pit. More careful mining might have prevented this accident.

September 3, at a quarry near Manitou, Raymond A. Kelly, age 21, a laborer, while placing a guard rail on a trestle leading to the top of a lime kiln, lost his balance and fell to the ground. His skull was fractured and he died in a few hours. This appears to have been an unavoidable accident.

December 10, at a limestone quarry in Fremont County, Frank Maes, age 22, a rock loader, was struck in the side by a rock which fell from above, receiving internal injuries from which he died a week later. He failed to hear a warning shouted to him by two men who saw the rock falling.

**DREDGES.**

January 29, on a dredge near Breckenridge, J. L. Kirby, age 42, an oiler, while engaged in cleaning a transformer, was electrocuted by coming in contact with the high voltage terminals of another transformer. His death was due to failure to turn off the current from the entire bank of transformers.



TABLE III

CLASSIFICATION ACCORDING TO CAUSE OF ALL ACCIDENTS IN THE METAL MINING AND QUARRYING INDUSTRY IN THE STATE OF COLORADO DURING THE YEARS 1919 AND 1920.

		Fatal		Total Disability		Permanent Disability		Temporary Disability		Slight Injuries	
		1919	1920	1919	1920	1919	1920	1919	1920	(Time lost over 14 days)	(Time lost 1 to 14 days)
UNDERGROUND											
1.	Falls of rock or ore from roof or walls	9	5	---	---	2	5	44	43	36	35
2.	Handling of rock or ore—										
	(a) Loading at face	1	---	---	---	1	---	1	11	8	20
	(b) Loading at chute	---	---	---	---	---	1	19	7	27	10
	(c) Sledging	---	---	---	---	2	---	2	1	4	3
3.	Timber or hand tools	---	1	---	---	---	2	4	14	8	26
4.	Explosives—										
	(a) Transportation	---	---	---	---	---	---	---	---	---	---
	(b) Charging	---	---	---	---	---	---	---	---	---	---
	(c) Suffocation	---	---	1	---	---	---	---	---	---	---
	(d) Drilling into old holes	2	---	---	---	---	---	---	1	---	---
	(e) Striking in loose rock	---	---	---	---	---	---	---	---	1	---
	(f) Thawing	---	---	---	---	---	---	---	---	---	---
	(g) Caps, detonators, etc.	---	---	---	---	---	---	---	---	---	---
	(h) Unguarded shots	1	---	---	1	---	---	3	---	1	---
	(i) Returned too soon	---	---	---	---	---	---	---	---	---	---
	(j) Premature shot	2	2	---	---	---	---	1	---	---	---
	(k) Miscellaneous	1	2	---	---	1	1	---	2	---	---
5.	Haulage—										
	(a) Hand and animal	---	---	---	---	---	---	---	3	5	3
	(b) Mechanical	1	1	---	---	1	4	21	23	26	26
6.	Persons falling down chute, winze, raise or stope	4	2	---	---	1	1	7	6	7	1
7.	Run of ore from chute or pocket	---	---	---	---	---	---	17	12	10	11
8.	Drilling (by machine or hand drills)	1	1	---	---	---	2	4	4	1	1
9.	Electricity—										
	(a) Direct contact with trolley wire	---	---	---	---	1	2	18	8	26	27
	(b) Tool or bar striking trolley wire	---	---	---	---	---	---	---	---	---	1
	(c) Contact with motor	---	---	---	---	---	---	---	---	---	---
	(d) Other causes	---	---	---	---	---	---	---	---	---	---
10.	Machinery other than 5 and 8	1	---	---	---	---	---	---	---	---	---
11.	Mine fires	---	---	---	---	---	---	---	---	---	---
12.	Suffocation from natural gases	---	---	---	---	1	2	4	2	1	3
13.	Unrush of water	2	---	---	---	---	---	---	---	---	---
14.	Nails and splinters	---	---	---	---	---	---	---	---	---	---
		---	---	---	---	---	---	1	---	1	3



	1	2	---	---	---	3	14	6	19	17
Other causes—										
(a) Falling objects other than 1 and 2.....	1		---	---	---	---	3	14	6	19
(b) Flying objects other than 2c.....			---	---	---	---	---	2	3	6
(c) Burns.....			---	---	---	---	---	2	1	10
(d) Miscellaneous .....			---	---	---	4	1	24	14	33
Total .....	24	18	---	---	---	2	14	26	162	221
SHAFT										
Falling down shaft.....	2	1	---	---	---	---	---	---	---	1
Objects falling down shaft.....	1		---	---	---	---	---	---	1	5
Breaking of cables.....			---	---	---	---	---	---	---	---
Overwinding .....			---	---	---	---	---	---	---	---
Cage, skip or bucket—										
(a) Runaway.....			---	---	---	---	---	---	---	1
(b) Riding with rock or ore.....			---	---	---	---	---	---	---	---
(c) Riding with timber or tools.....			---	---	---	---	---	---	---	---
(d) Struck by .....	1	2	---	---	---	1	1	1	3	5
Other causes .....	1		---	---	---	1	2	3	5	2
Total .....	4	3	---	---	---	1	7	5	11	5

## SURFACE SHOPS AND PLANT

[illegible]





# CLASSIFICATION ACCORDING TO CAUSE OF ALL ACCIDENTS IN THE METAL MINING AND QUARRYING INDUSTRY IN THE STATE OF COLORADO DURING THE YEARS 1919 AND 1920—Concluded.

	Fatal 1919 1920	Serious Injuries (Time lost over 14 days)		Temporary Disability		Slight Injuries (Time lost 1 to 14 days)	
		Total	Permanent	1919 1920	1919 1920	1919 1920	1919 1920
		Disability 1919 1920	Disability 1919 1920	Disability 1919 1920	Disability 1919 1920	Disability 1919 1920	Disability 1919 1920
5. Haulage—							
(a) Hand and animal							
(b) Mechanical							
6. Falling into quarry from surface, benches, or face				1		1	
7. Falling from hoist, derricks, ladders, etc.					1	3	2
8. Drilling and channeling (by machine or hand)	1				2	1	3
9. Electricity (shock or burns)							
10. Machinery—							
(a) Cables and attachments							
(b) Guys, masts, booms and attachments						2	1
(c) Pumps and hoisting engines					2		
11. Flying pieces of rock from sledging			1				
12. Nails, splinters, etc.					1	1	
13. Boiler and air tank explosions							
14. Animals							1
15. Other causes				1	3	10	2
Total	1	4	2	4	2	18	21
OUTSIDE WORKS							
16. Haulage—							
(a) Hand and animal						1	1
(b) Mechanical			2				
17. Railway cars and locomotives	1				1		1
18. Crushers							
19. Cranes, derricks, etc.							
20. Other machinery					1	1	1
21. Falls of persons					1		1
22. Hand tools			1				
23. Electricity (shock or burns)							
24. Nails, splinters, etc.							
25. Flying pieces of rock from sledging or crushing				1			
26. Flying or falling objects (rocks, timbers, etc.)					3	1	3
27. Burns					1	1	
28. Other causes							
Total	1		2	2	7	5	7

**TABLE IV**  
**CLASSIFICATION ACCORDING TO CAUSE AND OCCUPATION OF THE FATAL ACCIDENTS THAT**  
**OCCURRED IN THE METAL MINING AND QUARRYING INDUSTRY OF COLORADO IN THE**  
**YEARS 1919 AND 1920.**

MINES																		
			Superintendents, Foremen and Engineers 1919 1920		Machine Men and Helpers 1919 1920		Miners 1919 1920		Loaders, Shovelers, Muckers and Trammers 1919 1920		Trackmen, Pipemen, Pumpmen and Compressormen 1919 1920		Cage Tenders and Station Cagers 1919 1920		Carpenters, Timbermen and Helpers 1919 1920		Electricians, Motor-men and Helpers 1919 1920	
UNDERGROUND																		
1.	Falls of rock or ore from roof or wall	1	2	2	20	4	37	2	14	---	---	---	---	---	---	15	---	1
2.	Handling of rock or ore	---	---	---	1	---	10	1	39	---	---	---	2	---	---	---	---	---
3.	Timber or hand tools	---	2	---	3	2	12	---	16	3	---	---	1	---	---	6	---	---
4.	Explosives	1	---	---	2	---	11	1	3	---	---	---	---	---	---	1	---	4
5.	Haulage	---	---	---	2	---	15	1	39	---	---	---	---	---	---	---	---	---
6.	Persons falling down chute, winze, raise or stope	---	3	---	8	4	7	---	5	---	---	---	---	---	---	2	---	---
7.	Run of ore from chute or pocket	---	---	---	---	1	4	---	4	---	---	---	---	---	---	---	---	---
8.	Drilling (by machine or hand drills)	---	---	---	32	---	5	1	---	---	---	---	---	---	---	2	---	---
9.	Electricity	---	---	---	1	---	2	---	1	1	---	---	---	---	---	---	---	---
10.	Machinery other than 5 and 8	---	---	---	---	2	---	---	---	---	---	---	---	---	---	---	---	---
11.	Mine fires	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
12.	Suffocation from natural gases	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
13.	Inrush of water	---	---	---	1	---	1	---	1	---	---	---	---	---	---	---	---	3
14.	Nails and splinters	---	3	---	16	1	23	---	17	3	---	---	---	---	---	11	---	---
15.	Other causes	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	10
	Total	2	10	2	85	14	128	6	139	8	---	4	---	---	---	39	---	---
SHAFTS																		
16.	Falling down shaft	---	---	---	---	---	---	---	1	---	---	---	---	---	---	---	---	---
17.	Objects falling down shaft	---	---	1	1	---	2	---	---	---	---	---	---	---	---	---	---	---
18.	Breaking of cables	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
19.	Overwinding	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
20.	Cage, skip or bucket	1	---	---	---	---	4	---	1	---	---	---	1	---	---	1	---	---
21.	Other causes	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
	Total	1	1	1	1	---	6	---	2	---	---	3	---	---	---	1	---	---

# CLASSIFICATION ACCORDING TO CAUSE AND OCCUPATION OF THE FATAL ACCIDENTS THAT OCCURRED IN THE METAL MINING AND QUARRYING INDUSTRY OF COLORADO IN THE YEARS 1919 AND 1920—Continued.

	Superintendent-Engineers, Blacksmiths and Firemen and Foremen		Carpenters and Topmen		Elec- tricians		Others	
	1919	1920	1919	1920	1919	1920	1919	1920
<b>SURFACE</b>								
22. Haulage.....	---	---	---	10	---	1	---	7
23. Railway cars and locomotives.....	---	1	---	---	---	---	---	---
24. Run or fall of ore in or from ore bins.....	---	2	---	6	---	---	---	---
25. Fall of persons.....	---	---	---	19	---	1	---	11
26. Nails and splinters.....	---	---	---	3	---	---	---	4
27. Hand tools, axes, bars, etc.....	---	---	---	9	---	---	---	2
28. Electricity.....	---	---	---	---	---	1	---	---
29. Machinery.....	---	---	---	6	---	1	---	2
30. Other causes.....	2	3	---	27	---	2	3	14
Total.....	2	6	---	80	---	6	3	40
<b>MILLS</b>								
	Grinding Machinery		Concen- trator		Laborers		Carpenters and Mechanics	
	1919	1920	1919	1920	1919	1920	1919	1920
1. Haulage system.....	---	---	---	---	---	2	---	---
2. Railway cars and locomotives.....	---	---	---	---	---	---	---	---
3. Crushers, rolls or stamps.....	---	---	---	---	---	---	---	---
4. Tables, jigs, etc.....	---	---	---	---	---	---	---	---
5. Other machinery.....	---	---	---	---	---	---	---	---
6. Falls of persons.....	2	9	---	1	---	---	---	---
7. Suffocation in ore bins.....	1	8	---	2	---	4	---	1
8. Falling objects (rocks, timbers, etc.).....	---	---	---	---	---	---	---	---
9. Cyanide or other poisoning.....	---	1	---	---	---	---	---	---
10. Scalding (steam or water).....	---	---	---	---	---	---	3	---
11. Electricity.....	---	---	---	---	---	---	---	---
12. Hand tools, axes, bars, etc.....	---	---	---	---	---	---	---	---
13. Nails, splinters, etc.....	---	1	---	---	---	5	2	---
14. Flying pieces of rock from sledging or crushing.....	1	---	---	---	---	1	---	---
15. Other causes.....	4	5	---	---	---	1	4	---
Total.....	6	25	---	2	---	1	10	1



## SMELTERS

	Superintend- ents and Foremen		Laborers		Motormen and Switchmen		Feeders and Furnace Men and Charge Wheelers	
	1919	1920	1919	1920	1919	1920	1919	1920
1. Haulage system .....	---	---	---	---	---	---	---	5
2. Railway cars and locomotives.....	---	---	---	2	---	---	---	---
3. Cranes .....	---	---	---	1	---	---	---	---
4. Other machinery .....	---	1	1	10	2	---	3	---
5. Falls of persons.....	---	1	---	6	1	---	5	---
6. Suffocation in ore bins.....	---	1	---	---	---	---	---	---
7. Flying or falling objects (rocks, timbers, etc.) .....	---	---	---	16	---	---	6	---
8. Gas (burns or asphyxiation).....	---	---	---	1	---	---	---	---
9. Scalding (steam or water).....	---	---	---	2	---	---	2	---
10. Electricity .....	---	---	---	2	---	---	---	6
11. Hand tools, axes, bars, etc.....	---	---	---	8	2	---	---	---
12. Nails, splinters, etc.....	---	1	---	1	---	---	---	---
13. Burns from matte, slag, or molten metal (pouring or spilling).....	---	1	---	7	5	---	10	---
14. Hot metal explosions .....	---	2	---	1	---	---	5	---
15. Other causes .....	---	---	16	1	---	---	13	---
Total .....	---	7	1	83	1	12	---	55

## QUARRIES AND CLAY PITS

	Teamsters		Drillmen		Laborers	
	1919	1920	1919	1920	1919	1920
1. Haulage .....	---	---	---	---	1	---
2. Machinery .....	---	---	---	---	---	1
3. Other causes .....	---	---	1	1	---	---
Total .....	---	---	1	1	1	2



## OPERATING MINES IN BOULDER COUNTY, 1920

Name of Mine	Location of Mine	Operator	P. O. Address	Character of Product
Congo Chief (a)	Caribou	Allied Gold Mining Co.	1216 Pearl St., Boulder	Gold
Bismark (a)	Sunset	Bismark Mining & Development Co.	Sunset	Gold, Silver
New Rival Tunnel	Jamestown	Black Rose Mining & Milling Co.	435 E. 13th Ave., Denver	Gold, Silver
Tipecanoe (m)(a)	Rowena	C. C. Bracken	Boulder	Gold, Silver
Caribou	Cardinal	Caribou Metals Co.	Boulder	Gold, Silver
Boulder County Tunnel	Cardinal	Caribou Silver Mines Co.	Boulder	Gold, Silver
Baron (a)	Salina	Garfield, Charles	209 S. La Salle St., Chicago, Ill.	Gold, Silver
No Name (a)	Wallstreet	Cochran Brothers	2034 Spruce St., Boulder	Gold (c)
King Nos. 1 and 2 (a)	Crisman	Cold Spring Mining Co.	Boulder	Gold, Silver (c)
Concord, Walters, Ogalah.				
Forest (m)	Wallstreet	Colorado United Mines Co.	Citizens Nat. Bk. Bg., Boulder	Gold, Silver
May Queen (a)	Eldora	Deirks & Maloney	Box 542, Denver	Gold, Silver (c)
Digmore (a)	Ward	J. F. Logan	Rowena	Gold, Silver (c)
Dime (a)	Crisman	Dime Leasing Co.	Boulder	Gold (c)
July Bird (b)	Salina	L. H. Dodson	Boulder	Gold, Silver (c)
Grand County (a)	Caribou	Donald Syndicate	E. & C. Bldg., Denver	Gold, Silver (c)
Consolation (a)	Jamestown	J. O. Evans	Jamestown	Fluorspar
Argo (a)	Jamestown	Evans & Co.	Jamestown	Fluorspar
White Raven (m)	Ward	L. A. Ewing & Co.	Boulder	Silver, Lead
Moltke (b)	Ward	T. H. Gibson	Denver	Gold, Silver (c)
Morning Star (a)	Eldora	W. W. Gunter	Eldora	Gold, Silver (c)
Horsfal	Gold Hill	Charles Gustafson	Boulder	Gold, Silver
Potosi (a)	Caribou	Heine & Engstrom	Caribou	Gold, Silver (c)
Melvina (b)	Salina	J. H. Holmes & Co.	2031 12th St., Boulder	Gold, Silver
Humboldt	Ward	Humboldt Mining & Milling Co.	Ward	Gold, Silver
Huron (a)	Eldora	Huron Gold Ores Co.	404 Cooper Bldg., Denver	Gold
Poorman, Relief (a)	Boulder	William Laffea	Star Route, Boulder	Gold, Silver (c)
Bonanza	Eldora	Larimore Mining & Milling Co.	1547 Clarkson St., Denver	Gold, Silver (c)
Little Jonnie (m)	Salina	Little Jonnie Mining & Milling Co.	Salina	Gold, Silver (c)
Logan	Crisman	Logan Metals Co.	Box 333, Boulder	Gold
Lost Dutchman (a)	Rowena	Lost Dutchman Min. & Mill. Co.	Rowena	Gold, Silver (c)

New Enterprise (a)	.....	Crisman	.....	C. V. Malmberg & Co.	.....	Crisman	.....	Gold, Silver (c)
Wild Irishman (a)	.....	Summerville	.....	W. L. Miles & Co.	.....	Salina	.....	Gold, Silver (c)
Silver Siding Group	.....	Ward	.....	Mineral Park Mill. & Red. Co.	.....	618 Kittredge Bldg., Denver	.....	Gold, Silver (c)
Buster	.....	Magnolia	.....	Missoula Min., Mill. & Leas. Co.	.....	Magnolia	.....	Gold (c)
Alice (a)	.....	Jamestown	.....	Mohr & Markt	.....	Jamestown	.....	Gold, Silver
Evans Group (a)	.....	Summerville	.....	H. W. Nicholls	.....	Salina	.....	Gold, Silver (c)
Blue Bird	.....	Nederland	.....	North Boulder Creek Mining Co.	.....	Boulder	.....	Gold, Silver (c)
Wood Mountain	.....	Wallstreet	.....	Osberg & Pherson	.....	Boulder	.....	Gold, Silver
Arapahoe	.....	Ward	.....	Ross & Thulin	.....	Ward	.....	Gold, Silv., Copper
Shirley (a)	.....	Eldora	.....	Rowley & Coonan	.....	Eldora	.....	Gold, Silver
Senator Hill, Ophir (a)	.....	Magnolia	.....	Senator Hill & Ophir Syndicate	.....	535 Mack Bldg., Denver	.....	Gold
Snowbound (a)	.....	Gold Hill	.....	Snowbound Mining Co.	.....	Gold Hill	.....	Gold, Silver (c)
Lamar (a)	.....	Eldora	.....	W. J. Sullivan	.....	Eldora	.....	Gold, Silver, Tungsten (c)
Lalla Rookh (m) (a)	.....	Sunset	.....	Sunset Milling Co.	.....	Sunset	.....	Gold, Silver (c)
Prussian (m) (a)	.....	Rowena	.....	S. A. Tarbet & Co.	.....	Rowena	.....	Gold, Silver, Lead, Zinc
Tarbox Tunnel	.....	Ward	.....	J. L. Tarbox	.....	Clayton, Illinois	.....	Gold, Silver
Nation's Treasure (a)	.....	Jamestown	.....	E. R. Terry	.....	Jamestown	.....	Fluorspar (c)
Eureka Group	.....	Caribou	.....	Up-To-Date Mining Co.	.....	Boulder	.....	Silver, Lead (c)
Vasco Nos. 6 and 7 (m) (a)	.....	Tungsten	.....	Vasco Mining Co.	.....	Box 464, Boulder	.....	Tungsten
Cobb (a)	.....	Jamestown	.....	H. S. Vickery	.....	Jamestown	.....	Fluorspar (c)
Victoria	.....	Salina	.....	Victoria Mining Co.	.....	Gold Hill	.....	Gold, Silver
Des Moines (a)	.....	Jamestown	.....	George Walker	.....	Jamestown	.....	Fluorspar
Colorado (a)	.....	Summerville	.....	Walter & Pughe	.....	Gold Hill	.....	Gold, Silver
Burlington (a)	.....	Jamestown	.....	Warren Brothers	.....	Jamestown	.....	Fluorspar
Wigwam (a)	.....	Nederland	.....	Wigwam Mining Co.	.....	Nederland	.....	Silver
Cold Spring, Wolf Tongue	.....		.....		.....		.....	
Mill	.....	Nederland	.....	Wolf Tongue Mining Co.	.....	Boulder	.....	Tungsten
Yellow Pine	.....	Crisman	.....	Yellow Pine Mines & Reduction Co.	.....	Boulder	.....	Gold, Silver

(a) Operated for part of the year only.

(b) Operation ceased during the year.

(c) No ore shipped during the year.

(m) Mill operated in connection with the mine.

## OPERATING MINES IN CHAFFEE COUNTY, 1920

Name of Mine	Location of Mine	Operator	P. O. Address	Character of Product
Madonna (a)	Garfield	Colorado-Arizona Mines Company	Garfield	Gold, Silver, Lead
Alie Bell (a)	Romley	Colorado Silver Mines Company	210 Kittredge Bldg., Denver	Gold, Silver (c)
Eureka Mountain (a)	Buena Vista	Cottonwood Gulch Mining Co.	Canon City	Gold, Sil., Lead (c)
Flora Bell (a)	St. Elmo	Flora Bell Mining Company	St. Elmo	Gold, Sil., Lead (c)
Eclipse, Giant (a)	Garfield	Giant Eclipse Cons. Mines Co.	Salida	Gold, Silver, Lead, Zinc
Gladstone	Buena Vista	Gladstone Mines Company	Box 128, Buena Vista	Silver, Lead (c)
Golden Calf (a)	Twin Lakes	Golden Calf Mining Company	Rm. 24, State Capitol, Denver	Gold, Silver (c)
Mary Murphy	Romley	Mary Murphy Gold Mining Co.	307 Boston Bldg., Denver	Gold, Silver, Lead, Copper, Zinc, Manganese
Tom. Dick and Harry (a)	Twin Lakes	Tom, Dick and Harry M. & M. Co.	Rm. 24, State Capitol, Denver	Gold, Silver (c)

## OPERATING MINES IN CLEAR CREEK COUNTY, 1920

Name of Mine	Location of Mine	Operator	P. O. Address	Character of Product
Refugee Group (a)	Idaho Springs	Alamosa Mining & Leasing Co.	533 17th St., Denver	Silver, Lead (c)
Albro	Dumont	Albro Leasing Co.	Dumont	Gold, Sil., Copper
Treasure Vault (a)	Idaho Springs	W. G. Arkills	Idaho Springs	Gold, Silver, Lead
Tamasoa (a)	Idaho Springs	Cleora Barber	Idaho Springs	Gold, Sil., Lead (c)
Bellevue (a)	Empire	Bellevue Hudson Min. & Tun. Co.	402 Mining Ex. Bldg., Denver	Gold, Silver, Zinc
Regina (a)	Empire	F. E. Bender	San Diego, Calif.	Gold Sil., Cop. (c)
Edgar	Idaho Springs	Big Five Mining Co.	326 Century Bldg., Denver	Gold, Silver, Lead, Copper (c)
Senator, Hiawatha Tunnel	Dumont	Blue Ridge Mines Co.	213 Charles Bldg., Denver	Gold, Silver, Lead
Silver King (m) (a)	Dumont	Henry Bolthoff	1807 Emerson St., Denver	Gold, Sil., Lead (c)
Pioneer Tunnel	Dumont	Bonanza Mines Co.	Idaho Springs	Gold, Silver, Lead, Copper (c)
Lamartine, Oneida Stag Mill	Idaho Springs	Broderick Mining & Milling Co.	Idaho Springs	Gold, Sil., Lead (c)

Brown Reindeer (a)	Silver Plume	Brown Rein Deer Mining Co.	Silver Plume	Lead, Copper (c)
Daniel Peters (a)	Silver Plume	Walter E. Burlingame	Box 628, Denver	Silver, Lead
Butler (a)	Empire	Hank Butler	Georgetown	Silver (c)
Capitol	Georgetown	Capitol Mining & Tunnel Co.	Georgetown	Gold, Silver, Lead, Copper (c)
Iron King and others	Empire	Carlson Brothers	Empire	Gold, Sil., Lead (c)
Gold Belt Tunnel (a)	Silver Plume	Chasfield Mining & Milling Co.	Silver Plume	Gold, Sil., Lead (c)
Colorado Central (m) (a)	Georgetown	Colorado Central Mines Co.	412 Boston Bldg., Denver	Gold, Silver, Lead
	Empire	Columbian Mountain M. & Lsg. Co.	934 17th St., Denver	Gold, Sil., Lead (c)
Idaho Bride (a)	Idaho Springs	Continental Mines Development Co.	307 Mining Ex. Bldg., Denver	Silv., Lead, Copper
Specht or Clear Creek and Gilpin Tunnel (a)	Dumont	Corporation of American Mines	Dumont	Gold, Silver, Lead, Copper (c)
Mint or Crown Prince	Empire	Crown Prince Cons. Mines Co.	948 Gas & Elec. Bldg., Denver	Gold, Silv., Cop. (c)
Terrible (a)	Silver Plume	Denbigh Mining Corporation	Silver Plume	Gold, Silver, Lead, Zinc
Tom Moore (a)	Lawson	Drummond Mining & Milling Co.	226 Temple Court, Denver	Gold, Sil., Lead (c)
Sidney Tunnel (a)	Georgetown	East Argentine Tunnel, Min., Mill., Power & Transportation Co.	Georgetown	Gold, Silver, Lead, Copper (c)
Sill (a)	Grant	Finnerty & Margowski	321 Boston Bldg., Denver	Gold, Silver (c)
Gem, Silver Age (a)	Idaho Springs	Willard Elliott, Trustee	Idaho Springs	Gold, Silver, Lead, Copper (c)
Turner	Idaho Springs	Pitzmorris & Co.	Idaho Springs	Gold, Silver, Lead, Copper
Fraction	Idaho Springs	Fraction Leasing Co.	Idaho Springs	Gold, Silver, Lead, Copper (c)
French Flag (a)	Idaho Springs	French Flag Mining & Milling Co.	Idaho Springs	Gold, Silver, Lead, Zinc (c)
Nimrod (a)	Grant	Freund & Hunter	Cassells	Gold, Silver (c)
Edgar	Idaho Springs	Alfred Friedman & Co.	Idaho Springs	Gold, Silver, Lead, Copper
Gem, Franklin, Newton Mill	Idaho Springs	Gem Mining Co.	Idaho Springs	Gold, Silver, Lead, Zinc

(a) Operated for part of the year only.

(b) Operation ceased during the year.

(c) No ore shipped during the year.

(m) Mill operated in connection with the mine.



## OPERATING MINES IN CLEAR CREEK COUNTY, 1920—Continued

Name of Mine	Location of Mine	Operator	P. O. Address	Character of Product
Georgetown Tunnel (m)	Georgetown	Georgetown Tunnel Trans. Co.	Georgetown	Gold, Silver, Lead
Golden Edge	Idaho Springs	Golden Edge Mines Syndicate	436 1st Nat. Bk. Bldg., Denver	Gold, Sil., Lead (c)
Harrison-Conqueror Group, Tennessee-Denver City				
Group (m) (a)	Empire	Golden Empire Mining Co.	Empire	Gold, Silver (c)
Jeau (a)	Empire	G. H. Hagar & Co.	1224 Bannock St., Denver	Gold, Sil., Lead (c)
Lake	Idaho Springs	Hireen Mining & Leasing Co.	720 Majestic Bldg., Denver	Gold, Sil., Lead (c)
Belman (a)	Idaho Springs	W. R. Houghton	Idaho Springs	Gold, Silver (c)
Mt. Kelso (a)	Silver Plume	Jeffrey & Decker	Silver Plume	Gold, Silver, Lead
Silver Queen (a)	Cassells	Kimberly & Herwitz	Cassells	Silver, Lead (c)
May Day (a)	Dumont	C. W. Lerchen	Dumont	Gold, Silver (c)
Monarch (a)	Empire	Liberty Mining Co.	418 Barclay Bk., 18th and Larimer Sts., Denver	Silver, Lead (c)
Lincoln Group	Idaho Springs	Lincoln Group Mines Co.	505-509 Denham Bldg., Denver	Gold, Sil., Lead (c)
Lincoln (a)	Idaho Springs	Lincoln Mining & Milling Co.	800 Callahan Bank Bldg., Dayton, Ohio	Gold, Sil., Cop. (c)
C. R. Scotia (a)	Empire	W. F. Lively	Empire	Gold, Silver (c)
Ontario (a)	Empire	Lively, Stewart & Young	Empire	Gold, Silver (c)
Ulla (a)	Empire	Lively & Wells	Empire	Gold, Silver (c)
Lone Tree	Idaho Springs	Lone Tree Gold Mines Corp'n Co.	950 Logan St., Denver	Gold, Silver, Lead, Zinc
Lord Byron (a)	Idaho Springs	Lord Byron Mining & Milling Co.	Idaho Springs	Gold, Silver, Lead, Zinc
Jenny Lind (a)	Idaho Springs	Metals Mining & Leasing Co.	Idaho Springs	Gold, Sil., Cop. (c)
Metals Tunnel (a)	Idaho Springs	Metals Tunnel Co.	2555 W. 37th Ave., Denver	Gold, Silver (c)
Dunkirk	Silver Plume	James Mitchell & Co.	Silver Plume	Silver, Lead
Griffith (b)	Georgetown	Mono Mines Co.	404 1st Nat. Bk. Bldg., Denver	Gold, Silver, Lead
Mattie (m) (a)	Idaho Springs	Mountain States Power & Min. Co.	Idaho Springs	Gold, Silver (c)
Orion (a)	Lawson	Nelson & Combs	Lawson	Silver, Lead (c)
Pumpkin (a)	Lawson	Rupert Nelson	Lawson	Silver, Lead (c)
Bay State Tunnel	Empire	Nelson Leasing & Development Co.	Empire	Gold, Sil., Copper
Hoosac (m) (a)	Idaho Springs	New Life Tunnel & Mining Co.	Idaho Springs	Gold, Sil., Copper

Onondaga (a)	Georgetown	Onondaga Mines Co.	409 Boston Bldg., Denver	Gold, Silver, Lead
Ship Ahoy	Idaho Springs	John Peterson	Idaho Springs	Gold, Sil., Lead (c)
Everett (a)	Silver Plume	Powers Leasing Co.	Silver Plume	Gold, Silver, Lead
Randolph	Empire	Randolph Gold M. M. & T. Co.	214 Boston Bldg., Denver	Gold Silv., Cop. (c)
M. & M. (a)	Idaho Springs	T. E. Ryan Co.	St. Charles, Illinois	Gold, Sil., Lead (c)
Log Cabin Group, Reynolds				
Mill (a)	Alice	Roosevelt Mining & Milling Co.	Alice	Gold, Silver
Backbone	Silver Plume	M. Rosenberg & Co.	Silver Plume	Gold, Silver, Lead, Zinc
Comstock, Teddy Bear (b)	Lawson	B. Ross, Trustee	516 18th St., Denver	Gold, Silver, Lead
Roanoke	Grant	Roanoke Mining & Milling Co.	221 Foster Bldg., Denver	Gold, Sil., Lead (c)
Crown Point & Virginia (a)	Idaho Springs	Schoellkopf & Stroehle Leasing Co.	Idaho Springs	Gold, Sil., Lead (c)
Imperial, Centennial (a)	Georgetown	Seven Metals Mining Co., and United Imperial Mining Co.	233 Coronado Bldg., Denver	Gold, Silver (c)
Silver Leaf	Silver Plume	S. P. Silver Mining Co.	Silver Plume	Gold, Sil., Lead (c)
Neath (a)	Empire	Nathan Shapiro & Co.	Idaho Springs	Gold Silv., Cop. (c)
Silver Gem (a)	Idaho Springs	Silver Gem Mining Co.	329 United States Nat. Bank Bldg., Denver	Gold, Sil., Lead (c)
Buster	Silver Plume	Silver Plume Cons. M. Co.	1221 Foster Bldg., Denver	Gold, Silver, Lead, Zinc (c)
Platts Long	Lawson	Smith Lawson Mining Co.	Lawson	Gold, Sil., Lead (c)
Calvin (a)	Idaho Springs	Social Six Mining Co.	1439 Larimer St., Denver	Gold, Silver, Lead
St. George (a)	Georgetown	St. George Mine Inc.	Flagg Bldg., Yonkers, N. Y.	Gold, Silver, Lead
Stanley (a)	Idaho Springs	Stanley Consolidated Mining Co.	Idaho Springs	Gold, Sil., Lead (c)
Argo Tunnel	Idaho Springs	L. S. Stewart	Idaho Springs	Gold (c)
Smuggler (a)	Silver Plume	Stewart-Marshall Corporation	409 Jackson Bldg., Denver	Gold, Lead, Zinc (c)
Sceptre (a)	Georgetown	Sunburst Cons. Mines Co.	Care Tallmadge Kyner, Savoy Hotel, Denver	Gold, Sil., Lead (c)
Orinoco	Idaho Springs	Surety Gold Mining Co.	Idaho Springs	Gold, Silver, Lead, Copper (c)
Schley (a)	Idaho Springs	C. M. Taylor	Idaho Springs	Gold, Sil., Lead (c)
Collom (a)	Idaho Springs	Tuck & Co.	Idaho Springs	Gold, Silver (c)
Duluth Tunnel	Empire	Twin Ports & Empire Mining Co.	Room 27, Wisconsin Bldg., Superior, Wis.	Gold, Silver, Lead, Zinc (c)

(a) Operated for part of the year only.

(b) Operation ceased during the year.

(c) No ore shipped during the year.

(m) Mill operated in connection with the mine.

## OPERATING MINES IN CLEAR CREEK COUNTY, 1920—Concluded.

Name of Mine	Location of Mine	Operator	P. O. Address	Character of Product
Revenue (a)	Grant	Virginia Mines Co.	221 Foster Bldg., Denver	Gold, Silver, Lead, Copper (c)
Wilson (a)	Empire	Mrs. A. C. Wilson	515 N. Main St., Pueblo	Gold, Sil., Lead (c)
Mendota-Frostberg, Wasatch Mill	Silver Plume	Wasatch Colorado Mining Co.	Silver Plume	Gold, Silver, Lead, Zinc

## OPERATING MINES IN CONEJOS COUNTY, 1920

Name of Mine	Location of Mine	Operator	P. O. Address	Character of Product
Glacier (a)	Platoro	C. S. Barnes & Company	Monte Vista	Gold, Silver (c)
Siskiyou (a)	Platoro	Barnes & Switzer	Monte Vista	Gold, Silver (c)

## OPERATING MINES IN CUSTER COUNTY, 1920

Name of Mine	Location of Mine	Operator	P. O. Address	Character of Product
Bull-Domingo (a)	Westcliffe	Bull-Domingo Dev. & Min. Co.	Westcliffe	Gold, Silver (c)
Last Quarter (a)	Westcliffe	Canon Mining & Milling Co.	Canon City	Silver (c)
Maxine Elliott (a)	Westcliffe	H. H. McFann	637 Mayo Bldg., Tulsa, Okla.	Silver (c)
Black Friday (a)	Silver Cliff	Preston, Harriot & Beaman	Silver Cliff	Silver, Lead (c)
Polonia	Rosita	Polonia Leasing Company	Rosita	Silver (c)
Peerless (a)	Hillside	Peerless Cons. Copper Min. Co.	804 Symes Bldg., Denver	Copper (c)
Herman (a)	Westcliffe	Passiflora Min. & Mill. Co.	Florence	Gold, Silver
Annie (a)	Rosita	J. B. Putnam	Rosita	Gold (c)
Basick (m)(a)	Querida	Querida Gold Mines Company	310 Exchange Nat. Bnk., Bldg Colorado Springs	Gold, Silver (c)
Maverick (a)	Rosita	Rosita Mining & Milling Co.	Florence	Gold (c)
Cresson, May, Wedge (b)	Westcliffe	Verde Silver Mining Company	425 Foster Bldg., Denver	Silver (c)
Wentworth	Westcliffe	Wentworth Mines Company	Westcliffe	Silver (c)



# OPERATING MINES IN DOLORES COUNTY, 1920

Name of Mine	Location of Mine	Operator	P. O. Address	Character of Product
Big Three (a)	Rico	Big Three Mining & Milling Co.	301 Central Bldg., Pueblo	Gold, Silver (c)
Emma (m) (a)	Rico	Dolores Silver Mines Inc.	Sterling	Gold, Silver
Iron	Rico	John Doyle Min. & Mill. Co.	Rico	Gold, Copper
Pro Patria (a)	Rico	Marmatite Mining Company	Rico	Gold, Silver, Lead, Zinc, Copper
Puzzle (a)	Rico	McIntyre Mining Company	300 Sugar Bldg., Denver	Gold, Silver (c)
Mt. Pleasant (a)	Dunton	Mt. Pleasant Mining Company	Care Fillius, Fillius & Win- ters, E. & C. Bldg., Denver	Gold, Silver (c)
Mediterranean (a)	Rico	Robert L. Pellet	Rico	Gold, Silver (c)
Rico-Wellington	Rico	Rico-Wellington Mining Co.	Room 11, Knight Bldg., Provo, Utah	Gold, Silver, Lead, Zinc
Rose Bud (m) (a)	Dunton	Silver Gulch M. & M. Co.	1023 St. Paul Ave., Milwau- kee, Wis.	Silver (c)

# OPERATING MINES IN DOUGLAS COUNTY, 1920

Name of Mine	Location of Mine	Operator	P. O. Address	Character of Product
Sunny Slope (a)	South Platte	De Sobe & Co.	2149 Welton St., Denver	Gold, Silver (c)

- (a) Operated for part of the year only.  
(b) Operation ceased during the year.

- (c) No ore shipped during the year.  
(m) Mill operated in connection with the mine.

## OPERATING MINES IN EAGLE COUNTY, 1920

Name of Mine	Location of Mine	Operator	P. O. Address	Character of Product
Alpine (m) (a)	Red Cliff	Alpine Min & Mill. Co.	Red Cliff	Gold, Silver
Eagle	Gilman	Empire Zinc Company	Canon City	Gold, Silver, Lead, Zinc, Copper
Sulphide Group (a)	Red Cliff	Elliott and Da Lee Lease	Red Cliff	Silver
Lady Bell	Eagle	Horse Mountain Min. & Mill. Corp.	Eagle	Silver (c)
Liberty (a)	Red Cliff	J. M. Dismant	Red Cliff	Gold, Silver (c)
Ground Hog	Red Cliff	G. E. Olmstead	Red Cliff	Gold, Silver
Poorman, Pursey Chester	Red Cliff	Pursey Chester Mines Co.	2540 Market St., Denver	Gold, Silv., Copper
Evening Star, Evening Star				
No. 2 (a)	Gilman	D. G. White	Gilman	Silver (c)
Mabel		Tomsick & Company	1012 S. Union St., Pueblo	Gold, Sil., Lead(c)

## OPERATING MINES IN FREMONT COUNTY, 1920

Name of Mine	Location of Mine	Operator	P. O. Address	Character of Product
Cotopaxi (m)	Cotopaxi	Nature Products Refining Co.	Cotopaxi	Silver, Lead, Copper, Zinc (c)

(a) Operated for part of the year only.  
 (b) Operation ceased during the year.

(c) No ore shipped during the year.  
 (m) Mill operated in connection with the mine.

# OPERATING OIL SHALE PROPERTIES IN GARFIELD COUNTY, 1920

Name of Property	Location of Property	Operator	P. O. Address
Bumsted	De Beque	E. B. Bumsted	433 California St., San Francisco, Calif.
Grand Views, Smuggler and Aspen Groups	Grand Valley	Callahan Oil Shale Co.	1st National Bank Bldg., Denver
Hope, Ideal and others	Grand Valley	P. C. Coryell, Jr., & Co.	Glenwood Springs
Midland, Burbank, Federals, Community, D. & R. G., G. J. N.	Grand Valley	Eaton & Eaton	Box 583, Glenwood Springs
	Rifle	S. M. Felton	Box 447, Glenwood Springs
Texas, Denver	Grand Valley	Grand Valley Oil & Shale Co.	Grand Valley
March	De Beque	Lackawana Oil Shale Products Co.	924 Foster Bldg., Denver
Monarch	Grand Valley	March Oil Shale Co.	1st National Bank Bldg., Denver
	De Beque	Monarch Oil Shale Co.	722 Symes Bldg., Denver
Sentinel, Beacon, Mt. Logan, Annex	De Beque	Mt. Blaine Oil Shale Products Co.	De Beque
	De Beque	Mt. Logan Oil Shale Mining & Refining Co.	De Beque
Perfection, Magnetic	Grand Valley	Pilot Oil Shale Mining Co.	Grand Valley
Mt. Mamm	De Beque	Superior Shale Oil Co.	De Beque
	Rifle	Virginia Colorado Development Co.	720 1st Nat. Bank Bldg., Denver

**Note:** These companies are engaged in construction, development and experimental work. No commercial production of shale oil is being made.

## OPERATING MINES IN GILPIN COUNTY, 1920.

Name of Mine	Location of Mine	Operator	P. O. Address	Character of Product
Rialto (a)	Central City	American Mines Development Co.	726 Majestic Bldg., Denver	Gold, Silver (c)
Hampton	Central City	Amherst Mining Co.	517 Cooper Bldg., Denver	Gold, Silver, Lead, Copper
Bell Boy (a)	Apex	Bell Boy Gold Min. & Mill. Co.	332 Kittredge Bldg., Denver	Gold, Sil., Lead (c)
Ross (a)	Blackhawk	Berryman & Co.	Blackhawk	Gold, Sil., Lead (c)
St. Johns	Blackhawk	Bradford Mines Co.	Central City	Silver, Lead (c)
Golden Crescent	Central City	Frank L. Branham	Blackhawk	Gold, Silver (c)
Spur Daisy (a)	Central City	John Brorhl	Central City	Gold, Sil., Lead (c)
Clare Marie (a)	Central City	Clare Marie Mining Co.	Central City	Gold, Sil., Lead (c)
Comstock (a)	Central City	Comstock Min., Mill. and Exp. Co.	Central City	Gold, Silver (c)
Cornucopia (m)	Central City	Cornucopia Lsg., Min. & Mill. Co.	Care H. E. Biggle, Denver	Gold
Bullion (a)	Central City	Thomas R. Cudahy	Central City	Gold, Sil., Lead (c)
Buffalo Chip (a)	Central City	Duffield & Frasier	Central City	Gold, Silver (c)
(a)	Tolland	Colorado Gold King Min. & Exp. Co.	1646 Grant St., Denver	Gold, Silver (c)
Annie H (a)	Apex	Elk Park Mining Co.	200 Enterprise Bldg., Denver	Gold, Sil., Lead (c)
Evergreen	Apex	Evergreen Mines Co.	408 Empire Bldg., Denver	Gold Sil., Cop. (c)
Fannie (a)	Blackhawk	Fannie B. Mining Co.	215 Coronado Bldg., Denver	Gold, Silver (c)
Frontenac	Russell Gulch	Frontenac Leasing Co.	Russell Gulch	Gold, Silver
Gauntlett (a)	Central City	Gauntlett Gold Mining Co.	512 Boston Bldg., Denver	Gold, Silver (c)
Powers, Chase (a)	Central City	Gilpado Mining Co.	512 Equitable Bldg., Denver	Gold Sil., Cop. (c)
Gilpin-Eureka (m)	Central City	Gilpin-Eureka Mines Co.	Central City	Gold, Silver, Lead, Zinc
Champion	Blackhawk	George S. Hewes	Blackhawk	Gold, Silver, Lead
Seven Thirty (a)	Rollinsville	John Hilton	Rollinsville	Gold, Silver (c)
Anna C, L & (a)	Central City	C. F. House & Co.	216 18th St., Omaha, Neb.	Gold Sil., Cop. (c)
Lillian (a)	Russell Gulch	Hughes Consolidated Mining Co.	Russell Gulch	Gold Sil., Cop. (c)
East Notaway (a)	Central City	Petter Lentz & Co.	Central City	Gold Sil., Cop. (c)
Gold Cup	Central City	Little Kingdom Land & Mines Co.	50 Congress St., Boston, Mass.	Gold, Sil., Lead (c)
Illinois (a)	Tolland	Mammoth Development Co.	1216 17th St., Denver	Gold, Silver (c)
Maryland (a)	Rollinsville	Maryland Mine & Reduction Co.	1143 Larimer St., Denver	Gold Sil., Cop. (c)
Springdale (a)	Russell Gulch	McC Campbell & McLean	Russell Gulch	Gold, Sil., Copper

## Alaska, Cyclops Groups.

Iron City Mill	Blackhawk	Midwest Min. & Mill. Co.	2354 Elm St., Denver	Gold, Silver, Lead
Vivian Notaway	Central City	William Mitchell	Central City	Gold, Silv., Copper
Smuggler (m) (a)	Rollinsville	New Life Min. & Mill. Corp.	Rollinsville	Gold, Silver
Becky Sharp (a)	Russell Gulch	Old Town M., M. & Tpn. Co.	Idaho Springs	Gold, Silv., Copper
Contact	Rollinsville	Peter Peterson	Rollinsville	Gold, Silver (c)
Bridgewater (a)	Tolland	W. H. Potts	Tolland	Gold, Silver (c)
Kansas Ophir (a)	Central City	Quartz Hill Cons. Mines, Inc.	Idaho Springs	Gold, Silv., Cop.(c)
Rara Avis (a)	Central City	Rara Avis Mining Association	814 Central Savings Bank Bldg., Denver	Gold, Sil., Lead (c)
Bryan & Wheeler Tunnels	Blackhawk	O. C. Redick Mining Co.	250 Omaha Nat. Bank Bldg., Omaha, Nebr.	Silver, Lead, Zinc
Incidental	Russell Gulch	Rochester M. & M. Co.	Russell Gulch	Gold, Silv., Copper
Rochester Tunnel (a)	Apex	Saco De Oro M. & M. Co.	511 Back Bk., Denver	Gold, Silv., Cop.(c)
Black Jack	Blackhawk	Silver Mountain Mining Co.	421 East 18th Ave., Denver	Gold, Silver, Lead, Zinc
Speers (a)	Blackhawk	Speers & Selby Placer	Blackhawk	Gold
Arizona (a)	Russell Gulch	Anna G. Stewart	Idaho Springs	Gold, Silver, Lead, Copper
Homer	Central City	Taylor Mines Co.	Central City	Gold, Silv., Copper
Congress (a)	Blackhawk	Toronto Mining Co.	401 Jacobson Bldg., Denver	Silver (c)
Grand Union (a)	Rollinsville	S. R. Turney & Co.	Lamar	Gold, Silver (c)
Colorado Star (a)	Russell Gulch	Utah-Colorado M. & M. Co.	Room 100, Wm. Penn Hotel, Denver	Gold, Sil., Lead (c)
Fairfield	Central City	J. F. C. Webb	Russell Gulch	Gold, Silv., Copper

## OPERATING MINES IN GRAND COUNTY, 1920

Name of Mine	Location	Operator	P. O. Address	Character of Product
Boftall (a)	Sulphur Sprgs.	Combination M. & M. Co.	524 Quincy Bldg., Denver	Silv., Lead, Zinc(c)
W. I. M. Tunnel (a)	Empire	Co-operative Metal Mines Co.	309 Charles Bldg., Denver	Gold, Sil., Lead(c)
Orizaba	Parshall	Orizaba Mines Co.	312 17th St., Denver	Gold, Copper (c)
Ready Cash (a)	Empire	Taylor & Teagarden Co.	Empire	Gold, Silver, Lead, Zinc

(a) Operated for part of the year only.

(b) Operation ceased during the year.

(c) No ore shipped during the year.

(m) Mill operated in connection with the mine.

## OPERATING MINES IN GUNNISON COUNTY, 1920

Name of Mine	Location of Mine	Operator	P. O. Address	Character of Product
Akron (m)	Whiteline	Akron Mines	Whiteline	Silver, Lead, Zinc
Anaconda (a)	Iola	Anaconda Mining Co.	Iola	Gold, Silv., Cop (c)
Belzora-Bassick (b)	Pitkin	Belzora-Bassick Mining Co.	Care L. W. Fales, Lansing, Mich.	Gold, Sil., Lead (c)
Gunnison (a)	Iola	Fred H. Brown	Gunnison	Gold, Silver (c)
Carter	Ohio	Carter Mines Co.	Ohio	Gold, Silver, Lead
Dreckshage (a)	Gothic	Dreckshage Mining & Tunnel Co.	Crested Butte	Silver (c)
Ethiopian (a)	Pitkin	Graphite Corporation	Pitkin	Graphite
Gunnison Copper (a)	Gunnison	Gunnison Copper Co.	Gunnison	Copper (c)
Chicago Tunnel (a)	Pitkin	Handberg, Miller & McIntosh	Gunnison	Gold, Silver, Lead, Zinc
Morning Glory (a)	Pitkin	James Harbaugh & Son	Pitkin	Gold, Silver (c)
Headlight (a)	Spencer	Headlight Gold M. & M. Co.	2019 Elm St., Cincinnati, O.	Gold, Silver (c)
Star Group (a)	Tin Cup	John M. Larson	Aspen	Gold, Silver (c)
Hopewell (a)	Crested Butte	McGruder & Hunter	Crested Butte	Gold, Silver (c)
Francis (a)	Pitkin	Pandora M. & M. Co.	737 1st Nat Bk. Bldg., Denver	Gold, Silver (c)
Alice (a)	Whiteline	Princeton Mining & Reduction Co.	Care P. D. McNay, Silver City Iowa	Silv., Lead, Cop (c)
Roosevelt (a)	Pitkin	Roosevelt Mines & Electric Co.	Pitkin	Gold, Copper (c)
Ruby Cons. No. 7 (a)	Crested Butte	Ruby Cons. Silver Mines Co.	Care Albert Sutcliffe & Co., 262 Washington St., Boston, Mass.	Gold, Silver (c)
Red Bird (a)	Almont	John R. Sapp	Almont	Silver, Lead, Zinc
Victor	Whiteline	Victor Lease	Whiteline	Zinc
Doctor	Almont	Wick Mines Co.	Almont	



# OPERATING MINES IN HINSDALE COUNTY, 1920

Name of Mine	Location of Mine	Operator	P. O. Address	Character of Product
Fanny Fern (a)	Lake City	Fanny Fern Mining Co.	Lake City	Gold, Silver, Lead, Zinc
Golconda (a)	Lake City	Golconda Mines Consolidated	403 Merchants Bank Bldg., Indianapolis, Ind.	Gold, Silver
Golden Fleece (a)	Lake City	Golden Fleece M. & M. Co.	601 Foster Bldg., Denver	Gold, Silver (c)
Cleveland Group (a)	Lake City	Home Investment Co.	Care E. F. Mull, Lawrence, Kansas	Gold, Silver (c)
Hidden Treasure Group (a)	Lake City	McCarthy Hidden Treasure Mining Corporation	Lake City	Gold, Silver (c)
Sulphuric (a)	Lake City	Sulphuric Mining & Reduction Co.	Lake City	Silver (c)

# OPERATING MINES IN LAKE COUNTY, 1920

Name of Mine	Location of Mine	Operator	P. O. Address	Character of Product
Carbonate	Leadville	Martin Anderson & Co.	210 E. 9th St., Leadville	Manganese
Ollie Reed No. 2	Leadville	Frank E. Barry & Co.	704 E. 6th St., Leadville	Gold, Silver, Lead, Zinc
Gambetta	Leadville	W. E. Bowden	431 W. 4th St., Leadville	Gold, Silver, Lead, Zinc
Little Rieche (a)	Leadville	M. J. Brady & Co.	Box 685, Leadville	Silver, Lead (c)
A. V.	Leadville	Buchanan & Curtis	206 W. 8th St., Leadville	Manganese
Ibex	Leadville	Burton & Co.	509 E. 5th St., Leadville	Gold, Silver (c)
Ibex	Leadville	C. & G. Lease	329 W. 8th St., Leadville	Gold, Silver
Ibex	Leadville	Ibex Mining Co.	Leadville	Gold, Silver
Ibex (a)	Leadville	Kyle Lease No. 1	329 W. 8th St., Leadville	Gold, Silver, Copper, Lead, Zinc
South Moyer	Leadville	William Carson Lease	200 W. 7th St., Leadville	Silver, Iron
Blain	Leadville	Cortellini & Madsen	329 W. 8th St., Leadville	Lead, Zinc
Henrietta or Maid	Leadville	Cramer & Co.	121 S. Toledo Ave., Leadville	Silver, Lead, Iron

(a) Operated for part of the year only.  
(b) Operation ceased during the year.

(c) No ore shipped during the year.  
(m) Mill operated in connection with the mine.

## OPERATING MINES IN LAKE COUNTY, 1920—Continued

Name of Mine	Location of Mine	Operator	P. O. Address	Character of Product
Crescent, Catalpa, Star No. 5	Leadville	Cramer & Co.	121 S. Toledo Ave., Leadville	Manganese
Denver City	Leadville	Denver City Cons. Silver M. Co.	1343 High St., Denver	Zinc
Penrose and others	Leadville	Down Town Mines Co.	129 W. 8th St., Leadville	Silver, Lead, Man- ganese
Dunkin	Leadville	Dunkin Mining Co.	1343 High St., Denver	Silver, Manganese
Small Hopes (a)	Leadville	Empire Zinc Co.	Canon City	Zinc
Fanny Rawlings	Leadville	A. M. Belcher	Box 457, Leadville	Gold, Silv., Copper
New Monarch (a)	Leadville	John Fadiga & Co.	111 S. Harrison Ave., Lead- ville	Gold, Silver, Lead, Zinc
Garbutt, Negro Infant, King				
Solomon, Ontario (a)	Leadville	Garbutt Leasing Co.	329 W. 8th St., Leadville	Gold, Silver, Zinc
Matchless (a)	Leadville	C. L. Gaskins	Box 46, Leadville	Silver, Manganese
Griffin	Leadville	Griffin Mining Co.	Box 910, Leadville	Gold, Silver, Lead, Zinc
Dolly B. (a)	Leadville	Harvey & Co.	431 Harrison Ave., Leadville	Gold, Silver, Lead
Lillian	Leadville	Hersey & Murcay Lease	Leadville	Gold, Silver, Lead, Zinc
Gnome (a)	Leadville	Izard Lease	Box 606, Leadville	Gold, Silver, Lead
Dinero	Leadville	Jones Lease	1343 High St., Denver	Gold, Silver
K. & K. Tunnel	Leadville	K. & K. Metal Mining Co.	136 E. 7th St., Leadville	Gold, Silver (c)
Adelaide (a)	Leadville	Oscar Karpinen & Co.	Box 833, Leadville	Silver (a)
Kennebec (a)	Leadville	Kennebec Lease	Leadville	Silver, Lead
New Monarch (a)	Leadville	Joe Matjasich	Box 663, Leadville	Gold, Silver, Lead, Zinc
Mount Champion	Leadville	Mount Champion Mining Co.	Box 910, Leadville	Gold, Lead, Cop- per, Zinc (a)
Lillian	Leadville	Murcay Lease	Leadville	Zinc
New Monarch (a)	Leadville	New Monarch Mining Co.	Leadville	Gold, Silver, Lead
La Plata	Leadville	Nord Lease	192 S. Toledo Ave., Leadville	Gold, Silver, Lead
Clear Grit (a)	Leadville	Peck & Peterson Lease	314 E. 3rd St., Leadville	Gold, Silver (c)

Little Winnie	Leadville	George Peschel	Box 52, Leadville	Gold, Silver, Lead
Seventy Six	Leadville	Platt Lease	Leadville	Zinc, Iron
Harrison Dump (a)	Leadville	Mark Popovich & Co.	414 W. Elm St., Leadville	(c)
Long & Derry (a)	Leadville	Harry Schroeder	County Court House, Leadville	Silver (c)
Lida (a)	Leadville	Henry Schuck & Co.	700 Harrison Ave., Leadville	Silver, Lead
Dunkin No. 3	Leadville	Jacob Salo Lease	617 E. 6th St., Leadville	Silver
Shamus O'Brien	Leadville	Shamus O'Brien Leasing Co.	Pox 548, Leadville	Zinc
O'Donovan Rossa	Leadville	Silver Leasers Association	411 Boston Bldg., Denver	Silver, Lead (c)
Hibschle	Leadville	Thurn Mining & Leasing Co.	618 Harrison Ave., Leadville	Silver, Lead, Manganese
A. Y. & Minnie	Leadville	Wicklund & Peterson	Leadville	Silver, Lead (c)
Yak	Leadville	American Smelting & Refining Co.	Leadville	Gold, Silver, Lead
Yak	Leadville	Louis Springhetti & Co.	Leadville	Zinc
Robert E. Lee, Little Silver	Leadville	Frank Zaitz Leasing Co.	514 W. Chestnut St., Leadville	Silver, Manganese

# OPERATING MINES IN LARIMER COUNTY, 1920

Name of Mine	Location of Mine	Operator	P. O. Address	Character of Product
Akney	Fort Collins	Akney Copper Mining Co.	207 Colorado Bldg., Ft. Collins	Gold, Silver (c)
Bartlett, Copper King (a)	Fort Collins	Copper & Silver King M. & Dev. Co.	512-515 Exchange Bldg., Denver	Gold, Silver (c)
Cryst (a)	Fort Collins	Charles E. Thompson	Livermore	Gold, Silver (c)

# OPERATING MINES IN MESA COUNTY, 1920

Name of Mine	Location of Mine	Operator	P. O. Address	Character of Product
Flat Top Camp	Gateway	Radium Company of Colorado	Box 1316, Denver	Carnotite

(a) Operated for part of the year only.  
 (b) Operation ceased during the year.  
 (c) No ore shipped during the year.  
 (m) Mill operated in connection with the mine.

## OPERATING MINES IN MINERAL COUNTY, 1920

Name of Mine	Location of Mine	Operator	P. O. Address	Character of Product
Fluorspar (m)	Wagon Wheel Gap	American Fluorspar Co.	Wagon Wheel Gap	Fluorspar
Amethyst (a)	Creede	Amethyst Leasing Co.	Creede	Gold, Silver, Lead
April Fool (a)	Creede	April Fool Leasing Co.	Creede	Silver (c)
Bethel, Maine	Creede	Bethel Mining & Leasing Co.	Creede	Silver (c)
Bird Creek (a)	Creede	Bird Creek Mining Co.	Creede	Silver, Lead (c)
Sulphur Beds (a)	Creede	Buffalo Sulphur Refining Co.	Denham Bldg., Denver	Sulphur (c)
Mallisa (a)	Creede	Charles Campbell Lease	Creede	Silver
Commodore	Creede	Commodore Lease	828 Equitable Bldg., Denver	Silver
Bachelor	Creede	Norman G. Corson	Creede	Silver
Last Chance, New York,	Creede	D. M. & Chance Mining Co.	Creede	Gold, Silver, Lead
Del Monte	Creede	First National Mining Co.	Creede	Silver
Molly S (a)	Creede	Manitoba Leasing Co.	Creede	Silver
Manitoba	Creede	Morgan & Sloan Lease	Creede	Gold, Silver, Lead
New York	Creede	River View Leasing Co.	Creede	Silver
Tunnel (a)	Creede	Silver King Lease	Creede	Silver (c)
Silver King (a)	Creede	Wabash Mines & Power Co.	Creede	Silver
Monon Group	Creede		Creede	

## OPERATING MINES IN MOFFAT COUNTY, 1920

Name of Mine	Location of Mine	Operator	P. O. Address	Character of Product
Yongal	Yongal	Blue Mountain Mining Co.	Care W. L. Peterson, Craig	Silver, Zinc (c)

## OPERATING MINES IN MONTROSE COUNTY, 1920

Name of Mine	Location of Mine	Operator	P. O. Address	Character of Product
Bay State (a)	Naturita	Carnotite Trust Co.	Care Clarence A. Wood, Denver.	Carnotite (c)
(a)	Paradox Valley	Lawrence & Lindstedt	Naturita	Carnotite (c)
(a)	Paradox Valley	E. R. Martin	Redvale	Carnotite (c)
Cashin (b)	Bedrock	Michigan-Colorado Copper Co.	1312 Penobscot Bldg., Detroit, Mich.	Silver, Copper (c)
Johnstown and others (a)	Redvale	O'Neill, Bull & Martin	Redvale	Carnotite
Henry Clay and others.	Paradox Valley	Radium Company of Colorado	Box 1316, Denver	Carnotite
Long Park, Yellow Bird	Paradox Valley	Radium Luminous Material Corp.	Naturita	Carnotite
Club Group and others.	Paradox Valley	Standard Chemical Co.	Naturita	Carnotite
(a)	Paradox Valley	A. H. Ward	Naturita	Carnotite (c)

## OPERATING MINES IN OURAY COUNTY, 1920

Name of Mine	Location of Mine	Operator	P. O. Address	Character of Product
Atlas (m)	Sneffles	Atlas Mining & Milling Co.	Sneffles	Gold Silver, Lead, Zinc
Hidden Treasure Group (a)	Ouray	Ernest Bauer	Ouray	Gold, Sil., Lead (c)
Camp Bird	Ouray	Camp Bird Limited	Colorado Nat. Bank Bldg., Denver	Gold, Silver (c)
Wedge (a)	Ouray	Carney & Keleher	Ouray	Gold, Silver (c)
Romeo, Juliet (a)	Ouray	Chipeta Mining, Mill. & Smelting Co.	Ouray	Gold, Silver (c)
Johnathan	Ouray	John Donald	Ouray	Gold, Silver (c)
Eurades (a)	Ouray	Eurades Mining Co.	Ouray	Gold, Silver (c)
Neodesha	Ouray	Sam Fellin & Co.	Ouray	Silver
Black Girl	Ouray	Fred H. Herzinger	Ouray	Silver
Renville (a)	Red Mountain	Hoffman & Boyd	Silverton	Gold, Silver (c)
Bachelor-Khedive (a)	Ouray	John F. Keleher	Ouray	Gold, Silver (c)

(c) No ore shipped during the year.

(a) Operated for part of the year only.

(b) Operation ceased during the year.

(m) Mill operated in connection with the mine.



## OPERATING MINES IN OURAY COUNTY, 1920—Continued

Name of Mine	Location of Mine	Operator	P. O. Address	Character of Product
Legal Tender	Ouray	Legal Tender Exploration Mines Co.	Ouray	Gold, Silver (c)
Mickey Breen	Ouray	Loyal Mining & Milling Co.	Ouray	Gold, Silver (c)
Guadaloupe	Iron-ton	Lucky Twenty Co.	Ouray	Gold, Silver (c)
Barstow	Ouray	Lundberg-Johnson Lease	Ouray	Gold, Silver, Lead, Zinc
Imogene	Ouray	Lundberg & Wilfley Lease	Ouray	Gold, Silver, Lead, Zinc
El Madhi	Ouray	Alex. Martin & Co.	Ouray	Gold, Silver, Lead
Senorita (a)	Ouray	R. E. Meyers	Ouray	Gold
Mountain Top (m)	Sneffles	Mountain Top Mining Co.	Ouray	Gold, Silver, Lead, Zinc
Thistledown (a)	Ouray	Mt. Hayden Mining & Milling Co.	Ouray	Gold, Sil., Lead (c)
Newsboy	Ouray	Nick Hutter & Co.	Ouray	Gold, Silver, Zinc
Paymaster	Ouray	Paymaster Mines Co.	417 Cooper Bldg., Denver	Silver, Lead
Pony Express, Gold Crown	Iron-ton			
Mill (a)	Ouray	Pony Express Mining Co.	Ouray	Gold, Sil., Lead (a)
Silver Link (a)	Ouray	F. O. Seaberg	Ouray	Gold, Silver (c)
Red Mountain Group (m)	Ouray	Red Mountain Mines Co.	307 Boston Bldg., Denver	Gold, Silver, Lead, Zinc
Kentucky Giant, Indiana (b)	Ouray	Silver Mountain Mines Co.	50 Broad St., New York, N. Y.	Gold, Silver (c)
Senorita (a)	Ouray	Warde & Donald	Box 543, Ouray	Silver
White Cloud	Ouray	White Cloud M. & M. Co.	424 Cooper Bldg., Denver	Gold, Silver (c)

## OPERATING MINES IN PARK COUNTY, 1920

Name of Mine	Location of Mine	Operator	P. O. Address	Character of Product
Wheeler (a)	Alma	R. H. Baxter	Alma	Gold, Sil., Lead (c)
Champaign (a)	Alma	R. H. Baxter & Co.	Alma	Gold, Silver, Lead
Magnolia (a)	Alma	Commonwealth Mining Co.	925 Foster Bldg., Denver	Gold, Copper (c)

Red Lion (a)	Alma	Dissman & Morrell	Alma	Silver (c)
Rainbow (a)	Alma	Edwards & Butler	Alma	Gold, Silver (c)
Hill Top (a)	Fairplay	Hill Top Silver Mining Co.	1229 Foster Bldg., Denver	Gold, Silver, Lead.
				Zinc
Hock Hocking (a)	Alma	Hock Hocking Mining Co.	509 Exchange Bldg., Denver	Gold, Silver, Lead
South London	Alma	Johnson & Co.	Alma	Gold, Silver
Sweet Home (a)	Alma	Kasel & Bartos	Alma	Silver, Copper, Lead (c)
Russia	Alma	Lincoln Consolidation Partnership	Alma	Gold, Silver, Zinc
London	Alma	London Mines & Milling Co.	Alma	Gold, Silver, Lead
Dolly Varden (a)	Alma	Louisiana Colorado Mining Co.	521-522 Denham Bldg., Denver	Gold, Silver, Lead.
				Zinc
Mill Gulch (a)	Guffey	Mill Gulch Mining Co.	1018 E. Boulder St., Colorado Springs	Copper (c)
May Queen (a)	Alma	Queen Mining & Milling Co.	Alma	Gold, Silver (c)
Silver Wave (a)	Alma	E. W. Shrock	Alma	Silver, Zinc (c)
Missouri	Cassels	C. M. Snyder	Cassels	Silver, Copper
Gold Wave (a)	Alma	A. E. Chapman & Co.	Alma	Gold, Silver
Whale (m) (a)	Cassels	Whale Mines Leasing & Reduction Co.	1454 Marion St., Denver	Silver, Lead, Copper, Zinc
Weber Group (a)	Alma	Wheeler & Logue	634 Inca St., Denver	Gold, Silver (c)
Orphan Boy (a)	Alma	E. P. Young & Co.	Alma	Gold, Silver, Copper, Zinc

(a) Operated for part of the year only.

(b) Operation ceased during the year.

(c) No ore shipped during the year.

(m) Mill operated in connection with the mine.

## OPERATING MINES IN PITKIN COUNTY, 1920

Name of Mine	Location of Mine	Operator	P. O. Address	Character of Product
Lenado (a)	Woody	Aspen Contact Mining Co.	Aspen	Silv., Lead, Zinc(c)
Hope	Aspen	Hope Min., Mill, & Leas. Co.	Aspen	Silver, Lead (c)
Hurricane	Aspen	Hurricane Leasing Co.	Aspen	Silver, Lead
Eclipse (a)	Aspen	F. R. Leaver & Co.	Aspen	Silver, Lead (c)
Midnight Tunnel	Aspen	Midnight Mining Co.	Aspen	Silv., Lead, Cop.(c)
Newman Tunnel	Aspen	Newman Min., Mill, & Leas. Co.	Aspen	Silver, Lead
Park, Libby Belle, Jenny Lind Tunnels	Aspen	Park Tunnel, Mining & Milling Co.	Aspen	Silver, Lead, Zinc, Iron
Little Annie (m)	Aspen	Richmond Hill M., M. & Lsg. Co.	Aspen	Silver, Lead, Zinc, Iron
Smuggler (m)	Aspen	Smuggler Leasing Co.	Aspen	Silver, Lead, Zinc,
Spar	Aspen	Spar Con. Mining Co.	Aspen	Silver, Lead
Pride of Aspen (a)	Aspen	F. M. Yates	Aspen	Silver, Lead

## OPERATING OIL SHALE PROPERTIES IN RIO BLANCO COUNTY, 1920

Name of Property	Location of Property	Operator	P. O. Address
(a)	Rifle	Continental Oil Shale Mining & Refining Co.	421 Cooper Bldg., Denver

Note: Development and experimental work only. No commercial production of shale oil.

## OPERATING MINES IN ROUTT COUNTY, 1920

Name of Mine	Location of Mine	Operator	P. O. Address	Character of Product
Royal Flush (a)	Columbine	Hahn's Peak Gold M. & M. Co.	Room 3, Algonia Bldg., Oshkosh, Wis.	Gold, Silv., Zinc(c)

# OPERATING MINES IN SAGUACHE COUNTY, 1920

Name of Mine	Location of Mine	Operator	P. O. Address	Character of Product
Antoro (a)	Bonanza	Antoro Mines Co.	Bonanza	Gold, Silver, Lead, Copper
Cocomongo (m)	Bonanza	Cocomongo Mines Co.	Bonanza	Zinc
Esperanza	Center	Darnell Leasing Co.	Del Norte	Gold, Silver, Man- ganese
Express No. 1, Headlight(a)	Villa Grove.	Express Headlight M. & Dev. Co.	Villa Grove	Gold, Silver (c)
Orient (a)	Mineral Hot Springs	J. Gilligan	Mineral Hot Springs	Iron
Pershing Group	Villa Grove.	John McKenzie	Villa Grove	Zinc
Rawley (a)	Bonanza	Rawley Mining Co.	480 Lexington Ave., New York, N. Y.	Gold, Silver (c)
Eagle (m)	Villa Grove.	Saguache Eagle Mining Co.	1940 Broadway St., Denver	Gold, Silver, Lead, Zinc
Liberty (a)	Bonanza	Bulkeley Wells, Agent	201 14th St., Denver.	Silver, Lead, Zinc

(a) Operated for part of the year only.

(b) Operation ceased during the year.

(c) No ore shipped during the year.

(m) Mill operated in connection with the mine.

## OPERATING MINES IN SAN JUAN COUNTY, 1920

Name of Mine Diamond and others (a) Ariadne (a)	Location of Mine Silverton Silverton	Operator Anvil Leasing Co. Ariadne Corporation	P. O. Address Silverton Silverton	Character of Product Gold, Silv., Copper Gold, Silver, Lead Copper, Zinc (c)
Buffalo Boy (a) Black Prince Group	Silverton Silverton	Continental Mining Co. Crouse Tremaine Co.	Silverton Silverton	Gold, Silver (c) Gold, Silver, Copper, Lead (c)
Eastern Star (a) Columbus (a)	Silverton Eureka	G. H. Bibb Gnome Mining Co.	Silverton Eureka	Gold, Sil., Lead (c) Gold, Silver, Lead, Zinc (c)
Gold King (m) Henrietta (a) Highland Mary (a)	Silverton Silverton Silverton	Gold King Extension Mines Co. Henrietta Copper Mining Co. Highland Mary Leasing Co.	Silverton 1816 California St., Denver Silverton	Gold, Silver, Lead Gold, Silv., Copper Gold, Silver, Lead, Copper
Emborium (a) Hamlet (m) (a) Little Nation	Red Mountain Silverton Howardsville	Hoffman & Boyd Al Kolz Little Nation Mining Co.	Silverton Silverton Howardsville	Gold, Sil., Lead (c) Gold, Sil., Lead (c) Gold, Silver, Lead, Copper, Zinc (c)
Dives Senator (a) Baldora (a)	Howardsville Silverton Silverton	D. MacLean J. J. Molony Silverton Mines Co.	Durango Box 351, Silverton 703 Mining Ex. Bldg., Denver	Gold, Silver, Lead Silver, Lead Gold, Silver, Lead, Zinc
Iowa (m)	Silverton	Southwestern Mining Co.	Silverton	Gold, Silver, Lead, Copper, Zinc
Sunnyside (m)	Eureka	Sunnyside Mining & Milling Co.	Eureka	Gold, Silver, Lead, Copper, Zinc
Toltec	Eureka	United States Mining Corp'n.	Silverton	Gold, Sil., Lead (c)



## OPERATING MINES IN SAN MIGUEL COUNTY, 1920

Name of Mine	Location of Mine	Operator	P. O. Address	Character of Product
Lone Tree (a)	Sawpit	Barth & Collins	Sawpit	Carnotite (c)
Morning Glory (a)	Redvale	Barth & Ritchey	Sawpit	Carnotite
Alta (m) (a)	Telluride	Belmont Wagner Mining Co.	Telluride	Gold, Silver, Lead.
Sunnyside, Texas Group and others (a)	Redvale	Coefield & Chandler	Redvale	Copper
Black Bear	Telluride	Colorado-Superior Mining Co.	Telluride	Carnotite
Bear Creek, Dragon, Sawpit Mill (b)	Sawpit	Colorado Vanadium Corpn.	Sawpit	Gold, Silver, Lead.
Liberty Bell (m)	Telluride	Liberty Bell Gold Mining Co.	131 State St., Boston, Mass.	Copper, Zinc
..... (a)	Telluride	Lizard Head Mining Co.	Telluride	Vanadium
Matterhorn (a)	Ames Matterhorn	Matterhorn Mining & Milling Co.	Ames	Gold, Silver (c)
Silver Bell	Ames	Ophir Loop Mines Co.	Ames	Gold, Silver, Lead.
Uravan (a)	Redvale	S. T. Parr & Co.	Redvale	Copper (c)
Carbonero	Ophir	Ruuttila-Brown Leasing Co.	Ophir	Carnotite
Smuggler-Union (m)	Telluride	Smuggler-Union Mining Co.	Telluride	Gold, Silver, Lead.
Humboldt	Nucla	Sullivan Brothers & Clark Akers	Nucla	Copper, Zinc
Eclipse (a)	Telluride	Tomboy Gold Mines Co.	Telluride	Gold, Silver, Lead
Tomboy (m)	Telluride	Tomboy Gold Mines Co.	Telluride	Carnotite
San Bernardo, Valley View Mill	Ames	Valley View Leasing & Mining Co.	Matterhorn	Gold, Silver, Lead.
Fall Creek, Placerville, Vanadium Mill (b)	Vanadium	Vanadium Corporation of America	Boulder	Copper, Zinc
Cimarron (m) (a)	Telluride	John M. Wagner	Telluride	Gold, Silver, Iron

(a) Operated for part of the year only.

(b) Operation ceased during the year.

(c) No ore shipped during the year.

(m) Mill operated in connection with the mine.

## OPERATING MINES IN SUMMIT COUNTY, 1920

Name of Mine	Location of Mine	Operator	P. O. Address	Character of Product
Bolivar (a)	Montezuma	H. K. Bargar	Breckenridge	Silver, Lead (c)
Missouri (a)	Breckenridge	Bargar Brothers	Breckenridge	Silver, Lead
Laurium	Breckenridge	Blue Flag Gold Mining Co.	703 Exchange Bldg., Denver	Gold, Silver (c)
Michigan	Kokomo	W. E. Bowden	431 W. 4th St., Leadville	Gold, Silver, Lead, Copper, Zinc
June Bug (a)	Breckenridge	Boyce Brothers	Breckenridge	Gold, Silver, Lead
Fox Lake (a)	Breckenridge	Breckenridge Mining & Cyanide Co.	306 Railroad Bldg., Denver	Silv., Copper, Iron
Burke Group (a)	Montezuma	J. W. Burke & Co.	Montezuma	Gold, Silver (c)
Pearl (a)	Buffer	Stillwell Conner	166 S. Cherokee St., Denver	Silver (c)
Price (a)	Breckenridge	Detwiler Brothers	Breckenridge	Gold, Silver, Lead
St. Cloud (a)	Montezuma	Droesbaugh & Conner	Montezuma	Silver, Lead
Iron Mask (a)	Breckenridge	C. A. Finding	Breckenridge	Gold, Silver, Lead
Dunkin	Breckenridge	Forman & Robinson	Breckenridge	Gold, Sil., Lead (c)
Denver (a)	Montezuma	Hatton & Todd	Montezuma	Gold, Silver (c)
Morework (a)	Montezuma	Lawver & Fiedler	East Canton, Ohio	Silver, Zinc (c)
Pennsylvania (m) (a)	Montezuma	Liberty Mining & Reduction Co.	202 Masonic Bldg., Denver	Gold, Silver, Lead, Zinc
Morning Star, Jerry (Hancock)	Montezuma	Minerals Corporation	Montezuma	Silver, Lead (c)
Missouri	Breckenridge	Missouri Leasing Co.	Breckenridge	Silver, Lead
Molly B (a)	Breckenridge	Molly B. Mining & Milling Co.	Holyoke	Gold, Silver, Copper, Bismuth (c)
Brooks-Snyder (a)	Breckenridge	G. W. Morgan	2920 S. Elati St., Englewood	Gold, Silver
Germania (a)	Breckenridge	Murphy, Vaughn, David	Breckenridge	Silver
Silver Queen	Kokomo	Mutual Co-operative Mining Co.	206 Masonic Temple, Denver	Silver
Iron Mask (a)	Breckenridge	Ostrum & Tillet	Breckenridge	Gold, Silver, Lead
Vanderbelt Nos. 1 & 2 (a)	Montezuma	John Paulus & Co.	Montezuma	Silver, Lead (c)
Morgan Group (a)	Montezuma	Persistent Milling, Leas. & Min. Co.	1331 Lawrence St., Denver	Sil., Lead, Zinc (c)
Woodrow Wilson (a)	Breckenridge	Quandry Mines Co.	613 Kittredge Bldg., Denver	Silver (c)
Pilot, O'Brien (a)	Kokomo	Robb, O'Brien & Thomson	Kokomo	Silver (c)
Jessie (m) (a)	Breckenridge	George F. Roth	Breckenridge	Gold, Silver, Lead, Zinc
Royal Tiger (m)	Tiger	Royal Tiger Mines Co.	Tiger	Gold, Silver, Lead

St. Elmo	Montezuma	St. Elmo Mining Co.	Montezuma	Gold, Sil., Lead (c)
Standard (a)	Breckenridge	Frank Shearer	Breckenridge	Gold, Silver, Lead
Sts. John (a)	Montezuma	Sts. John Mines Colo. Ltd.	Montezuma	Lead, Copper (c)
Warriors Mark	Breckenridge	Warriors Mark Mining Co.	Breckenridge	Silver (c)
Wellington (m)	Breckenridge	Wellington Mines Co.	Breckenridge	Gold, Silver, Lead, Zinc
Westmoreland (a)	Kokomo	O. E. Williams	Kokomo	Silver (c)

## OPERATING MINES IN TELLER COUNTY, 1920

Name of Mine	Location * of Mine	Operator	P. O. Address	Character of Product
Dexter (a)	Cripple Creek	Anderson & Benkelman	802 St. Paul St., Denver	Gold (c)
Elkton Dump	Cripple Creek	John Bernard	Elkton	Gold
Blue Flag	Cripple Creek	Blue Flag Gold Mining Co.	703 Exchange Bldg., Denver	Gold (c)
Blue Bird (a)	Cripple Creek	Buckeye Mines & Milling Co.	Box 468, Colorado Springs	Gold (c)
Elkton	Cripple Creek	J. S. Chapman	1228 N. Corona St., Colorado Springs	Gold
Cresson, Trilby	Cripple Creek	Cresson Cons. G. M. & M. Co.	800 Exchange Nat. Bank Bldg., Colorado Springs	Gold
Dante (b)	Cripple Creek	Dante Mining & Milling Co.	Room 224, Temple Court, Denver	Gold
Jerry Johnson (a)	Cripple Creek	F. H. Denman & Co.	Room 26, Welty Blk., Cripple Creek	Gold (c)
Alpha and Omega (a)	Cripple Creek	Dig Gold Mining Co.	222 McPhee Bldg., Denver	Gold (c)
Doctor Jack Pot	Cripple Creek	Doctor Jack Pot Mining Co.	State Bank, Cripple Creek	Gold
Joe Dandy (a)	Cripple Creek	Eclipse Leasing Co.	402 Bennett Bldg., Colorado Springs	Gold
El Paso	Cripple Creek	El Paso Cons. Gold Mining Co.	State Bank, Cripple Creek	Gold
Index	Cripple Creek	El Paso Extension G. M. Corp.	Cripple Creek	Gold
Longfellow	Cripple Creek	Excelsior M. M. & Elec. Co.	401 Interstate Trust Bldg., Denver	Gold (c)

(a) Operated for part of the year only.

(b) Operation ceased during the year.

(c) No ore shipped during the year.

(m) Mill operated in connection with the mine.

## OPERATING MINES IN TELLER COUNTY, 1920—Continued

Name of Mine	Location of Mine	Operator	P. O. Address	Character of Product
Forest Queen	Cripple Creek	Forest Queen Mines Co.	612 E. & C. Bldg., Denver.	Gold (c)
Cameron, Rose Hardy (a)	Cripple Creek	Golden Eagle Mining Assn.	814 Central Savings Bldg., Denver	Gold (c)
Dillon	Cripple Creek	Granite Gold Mining Co.	Box 22, Colorado Springs.	Gold
Thompson (a)	Cripple Creek	Dan Hill	Elkton	Gold
Isabella (a)	Cripple Creek	Isabella Mines Co.	Box 1404, Cripple Creek	Gold
Index	Cripple Creek	Lamphere & Schneider	Cripple Creek	Gold
South Burns	Cripple Creek	LeBrun Lease	Cripple Creek	Gold (c)
Lincoln No. 2, Iron Clad Mill.	Cripple Creek	Lincoln Mines & Reduction Co.	Cripple Creek	Gold
Mary McKinney, Howard	Cripple Creek	Mary McKinney Mining Co.	Box 1346, Cripple Creek	Gold, Silver
Midget (a)	Cripple Creek	Keystone Cons. Mines Co.	1444 Goodfellow Ave., St. Louis, Mo.	Gold (c)
Star of Bethlehem	Cripple Creek	Mining Development Co.	Cripple Creek	Gold (c)
Modoc, Last Dollar	Cripple Creek	Modoc Consolidated Mines Co.	837 Symes Bldg., Denver.	Gold
Rittenhouse (a)	Cripple Creek	Moonlight	Box 36, Colorado Springs.	Gold (c)
	Cripple Creek	Moose Gold Mining Co.	Apt. 24, No. 1221 Sherman St., Denver	Gold (c)
South Burns (a)	Cripple Creek	Mt. Marie Gold M. & Lsg. Co.	Cripple Creek	Gold (c)
(a)	Cripple Creek	Patterson & Bradley Leasing Co.	State Bank, Cripple Creek	Gold (c)
Portland, Independence Mill.	Cripple Creek	Portland Gold Mining Co.	Colorado Springs	Gold, Silver
Rose Nicol (b)	Cripple Creek	Reva Mining Co.	935 Foster Bldg., Denver.	Gold
Strong	Cripple Creek	Owen Roberts	Box 202, Victor	Gold
Elkton (dump)	Cripple Creek	Henry Schlatter	Elkton	Gold
	Cripple Creek	Stratton C. C. M. & D. Co.	Box 68, Cripple Creek	Gold
Hardwood, Maud S. (a)	Cripple Creek	United Gold Mines Co.	800 Exchange Nat. Bank Bldg., Colorado Springs	Gold
Vindicator (m)	Cripple Creek	Vindicator Cons. G. M. Co.	603 Symes Bldg., Denver.	Gold
War Eagle, Happy Year				
Group (a)	Cripple Creek	War Eagle Consolidated Mines Co.	115 N. 3d St., Cripple Creek	Gold (c)
Gold Sovereign (a)	Cripple Creek	Evan J. Williams	Cripple Creek	Gold
Katharine (dump) (a)	Cripple Creek	Wolcott & Co.	Elkton	Gold (c)

# OPERATING QUARRIES AND CLAY PITS, 1920

Location		Character		P. O. Address	
Town	County	Name	Operator		
Lyons	Boulder	St. Vrain	J. C. Brodie	609 Interstate Trust Bldg., Denver	
Salida	Chaffee				
Salida	Chaffee	Bowers	E. T. Bowen	820 H St., Salida	
Salida	Chaffee	Columbine	Bowers & Hileman	Box 606, Salida	
Garfield	Chaffee	Doctor	Columbine Granite Co.	1608 Broadway, Denver	
Garfield	Chaffee	Giant Eclipse	Davis & Watson	Garfield	
			Giant Eclipse Consolidated		
Salida	Chaffee	McLaughlin	Mines Co.	Salida	
Salida	Chaffee	Bonaccord Salida	Nan T. McLaughlin	1015 Osage St., Denver	
Salida	Chaffee		Russell & Yule	525 H St., Salida	
Larkspur	Douglas	Geedis Spur	Salida Granite Corporation	West Fifth St., Salida	
Castle Rock	Douglas	Castle Rock	Hawn & Co.	Larkspur	
Castle Rock	Douglas	Red Pit	A. C. Nipko	Castle Rock	
Pueblo	El Paso	Hecla	Grant Parfet	Golden	
Calhan	El Paso	Rabbit	Capers Contracting Co.	Box 409, Pueblo	
Calhan	El Paso	Calhan, Rice	Capers Contracting Co.	Box 409, Pueblo	
Manitou	El Paso	Manitou	Standard Fire Brick Co.	Pueblo	
Canon City	Fremont		Western Lime Co.	422 E. & C. Bldg., Denver	
Wellsville	Fremont	Boyer	H. F. Bowen & Co.	Canon City	
Wellsville	Fremont	Calcite	H. F. Bowen & Co.	Canon City	
Wellsville	Fremont	Calcite	W. H. Boyer	Salida	
Wellsville	Fremont	Wellsville	Colorado Fuel & Iron Co.	Boston Bldg., Denver	
Coaldale	Fremont	Coaldale	Colorado Lime Corporation	230 Empire Bldg., Denver	
Portland	Fremont	Portland	Colorado Lime Corporation	230 Empire Bldg., Denver	
Portland	Fremont	Portland	Colorado Portland Cement Co.	508 Ideal Bldg., Denver	
Canon City	Fremont	Triangle, Climax	Colorado Portland Cement Co.	508 Ideal Bldg., Denver	
		Flint	Diamond Fire Brick Co.	Canon City	



## OPERATING QUARRIES AND CLAY PITS, 1920

Town	Location	Name	Character of Product	Operator	P. O. Address
Canon City	Fremont	B. D.	Silica	Diamond Fire Brick Co.	Canon City
Canon City	Fremont	Dolomite	Dolomite	R. Frankenberg	Canon City
Canon City	Fremont	Burnite	Sandstone	Ganister Mining Co.	Canon City
Canon City	Fremont	Climax	Fire Clay	Jewett Fire Brick Co.	315 S. 11th St., Canon City
Salida	Fremont	Nigro & Post	Limestone	Nigro & Post	Box 425, Salida
Cotopaxi	Fremont	Peter Noon	Granite	Peter Noon	Cotopaxi
Canon City	Fremont	Canon	Silica	Standard Fire Brick Co.	24th and Summit Sts., Pueblo
Parkdale	Fremont	Parkdale	Silica	Standard Fire Brick Co.	24th and Summit Sts., Pueblo
Canon City	Fremont	Crystal Spring	Shale	Summit Pressed Brick & Tile Co.	Pueblo
Concrete	Fremont	Concrete	Limestone	United States Portland Cement Co.	305 Ideal Bldg., Denver
Concrete	Fremont	Concrete	Shale	United States Portland Cement Co.	305 Ideal Bldg., Denver
Glenwood Springs	Garfield	Glenwood	Limestone	Holly Sugar Corporation	Box 118, Denver
Golden	Jefferson		Fire and Plastic Clay	Collins & Salmon	Golden
Golden	Jefferson	Queen City	Plastic Clay	Denver Pressed Brick Co.	219 Temple Court, Denver
Golden	Jefferson		Fire and Plastic Clay	Henry Golightly	Golden
Plastic Siding	Jefferson	Plastic No. 7	Plastic Clay	F. W. Loveland	410 Boston Bldg., Denver
Golden	Jefferson	Apex	Clay	Edward Parfet	Golden
Golden	Jefferson	Fire Clay and others	Fire Clay	Grant Parfet	Golden
Golden	Jefferson	Ramstetter	Feldspar, Flint and Mica	Henry Ramstetter	R. R. No. 4, Golden
Golden	Jefferson		Clay	Thomas Shepard	Golden
Fireclay	Jefferson	Fire Clay	Fire Clay	Western Clay & Manufacturing Co.	4045 Lowell Blvd., Denver
La Porte	Larimer	Ingleside	Limestone	Fred Acosta	205 Sugar Bldg., Denver
La Porte	Larimer	Larimer	Limestone	Dem Furones	La Porte
La Porte	Larimer		Limestone	S. M. Johnson	Bellvue
La Porte	Larimer		Limestone	Owl Canon Quarry Co.	La Porte

Loveland	Larimer	Loveland, and Loveland and Denver Mills	Gypsum	United States Gypsum Co.	205 W. Monroe St., Chicago, Ill.
Lima	Pueblo	Lime	Limestone	Colorado Fuel & Iron Co.	Boston Bldg., Denver
Stone City	Pueblo	Myrtle	Limestone	Pueblo Clay Products Co.	448 Thatcher Bldg., Denver
Mustang	Pueblo	Vulcan	Clay	Standard Fire Brick Co.	Pueblo
Stone City	Pueblo	Turkey Creek	Sandstone	Turkey Creek Stone, Clay & Gypsum Co.	304 Central Blk., Pueblo
Stone City	Pueblo	Turkey Creek	Clay	Turkey Creek Stone, Clay & Gypsum Co.	304 Central Blk., Pueblo
Livesey	Pueblo	Livesey	Limestone	Western Lime Company	422 E. & C. Bldg., Denver
Villa Grove	Saguache		Marble	Colorado Decorative Marble Co.	1805 Curtis St., Denver

# OPERATING MILLS AND SMELTERS, 1920

Name	Character of Plant	Town	Location	County	Operator	P. O. Address
Iron Mountain	Ferro Alloy Mfg.	Utah Junction	Adams		Ferro Alloy Co.	603 Symes Bldg., Denver
Telegraph	Concentration	Ward	Boulder		American Gold & Platinum Co.	637 Symes Bldg., Denver
Lehman	Concentration	Jamestown	Boulder		Fluorspar Production Co.	Jamestown
	Tungsten and Car-					
	notite Reduction	Boulder	Boulder		Tungsten Products Co.	Boulder
Sampler	Ore Sampler	Idaho Springs	Clear Creek		Clear Creek Gilpin Ore Co.	Idaho Springs
Hudson	Concentration	Idaho Springs	Clear Creek		Hudson Milling Co.	Idaho Springs
	Carnotite Reduction	Denver	Denver		Ore Products Corporation	136 State St., Albany, N. Y.
	Carnotite Reduction	Denver	Denver		Pittsburg Radium Co.	2145 S. Mariposa St., Denver
	Carnotite Reduction	Denver	Denver		Radium Company of Colorado	Box 1316, Denver
	Ferro Alloy Mfg.	Denver	Denver		Steel Alloys Co.	1625 W. 12th Ave., Denver
	Ferro Alloy Mfg.	Denver	Denver		York Metal & Alloys Co.	703 Symes Bldg., Denver
Globe Plant	Lead Smelter	Denver	Adams and Denver		American Smelting & Refining Co.	Equitable Bldg., Denver
Denver Works	Reduction	Denver	Denver		General Chemical Co.	Osage & W. Bayaud Sts., Denver

## OPERATING MILLS AND SMELTERS, 1920—Continued

Name	Character of Plant	Town	Location	County	Operator	P. O. Address
Golden Cycle Mill	Cyanidation	Colorado Springs	El Paso	Golden Cycle Mining & Reduction Co.	Box 86, Colorado Springs	
Pine Martin Mill	Concentration	Redcliff	Eagle	Newman-Loomis Concentrator & Mines Management Co.	Redcliff	
Empire Zinc Mill and Oxide Plant	Concentration and Smelter	Canon City	Fremont	Empire Zinc Co.	Canon City	
Ohio Smelter	Zinc Oxide Smelter	Canon City	Fremont	Ohio Zinc Co.	Canon City	
River S. & R. Plant	Zinc Smelter	Florence	Fremont	River Smelting & Refining Co.	Florence	
Durango Plant	Lead Smelter	Durango	La Plata	American Smelting & Refining Co.	Equitable Bldg., Denver	
Arkansas Valley Plant	Lead Smelter	Leadville	Lake	American Smelting & Refining Co.	Equitable Bldg., Denver	
Western Zinc Plant	Zinc Oxide	Leadville	Lake	Western Zinc Oxide Company	139 East 9th St., Leadville	
Hunter Creek Mill	Ore Sampler	Montrose	Montrose	Radium Ore Sampling Co.	Montrose	
Pueblo Plant	Concentration	Aspen	Pitkin	Hunter Creek Leasing Co.	Aspen	
	Lead Smelter	Pueblo	Pueblo	American Smelting & Refining Co.	Equitable Bldg., Denver	
Blende Plant	Zinc Smelter	Pueblo	Pueblo	United States Zinc Co.	Pueblo	
Eagle Sampler	Ore Sampler	Victor	Teller	Eagle Ore Co.	Victor	
	Compressed Air	Cripple Creek	Teller	Teller County Air Company	Cripple Creek	

## OPERATING GOLD DREDGES, 1920

Town	Location	County	Operator	P. O. Address
Leadville		Lake	Derry Ranch Gold Dredging Co.	Leadville
Breckenridge		Summit	Blue River Dredging Co.	1718 California St., Denver
Breckenridge		Summit	French Gulch Dredging Co.	Box 1038, Colorado Springs
Breckenridge		Summit	Tonopah Placers Co. (2 dredges)	Breckenridge

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